THE BOSTON
Medical and Surgical
JOURNAL

VOLUME 193 SEPTEMBER 10, 1925 NUMBER 11

ORIGINAL ARTICLES

THE USE OF IODINE IN GOITRE

BY FRANK H. LAHEY, M.D., BOSTON

THE fact that nearly all goitres coming to our clinic, regardless of what type, have at some time received iodine, indicates that there prevails a considerable lack of knowledge as to what types of thyroid disorders are benefited and what types injured by the use of iodine as a therapeutic agent.

The use of iodine in the treatment of goitre has always been common. It was given in early times in a vague general manner as sea-sponge ash, with the idea that it was generally helpful to nearly all types of goitre, this idea being handed down from one generation to another. Of late years, however, the publicity which iodine has received in medical literature and the public press, particularly in goitre regions, where it has been introduced into the water supply, and the beneficial effects obtained in exophthalmic goitre from the administration of Lugol's Solution, have very markedly stimulated its employment in thyroid disorders to such an extent that it is administered in cases where it can do no good, in borderline cases where it may mask the symptom, or in improper cases where it may do real harm.

Iodine is useful in two pathological thyroid states,—one, in regions where goitre is endemic, and the iodine content of the drinking water is low, as a prophylactic measure against the development of goitre in children; and two, as a measure to prepare toxic thyroid patients for operation.

Its use as a prophylactic measure in the form of sodium iodide gr. 1 per day for one week out of every six months, or iodized table salt containing only traces of iodine has been convincingly demonstrated by Kimball and Marine in their experiments with the school-children of Akron, Ohio. In the doses advocated by these investigators and for the short periods of time over which it is administered, no injurious results will occur, and it is to be recommended highly. One should have in mind, however, that its employment is recommended, as stated above, only in those regions where the iodine content of the drinking water is low and goitre is endemic. Where there exists already a considerable amount of iodine in the water supply, it is obviously of no advantage to supply more by the administration of iodine by mouth.

Fortunately in this community goitre is not endemic, a good supply of sea food is always available, and the water contains a considerable amount of iodine.

The real danger in the administratio of iodine in the New England states is in its employment in nodular or adenomatous goitre. We are constantly receiving patients into the Clinic with adenomatous goitre who have been receiving iodine and have repeatedly observed the ill effects of such treatment in this type of goitre, that is, the conversion of a non-toxic adenoma into a toxic adenoma by iodine.

It has long been recognized that the use of iodine in any form in adenomatous goitre may and does in a definite percentage of cases bring about a thyroid intoxication by stimulating hyperfunction, in the previously inactive tumor. We urge strongly, therefore, that care be taken to determine carefully the type of thyroid tissue present before iodine is administered over any considerable period of time, and that in no case is it to be given to a goitre in which nodules may be palpated.

The introduction of Lugol's Solution by Dr. Henry S. Plummer as a method of preparation for operation in exophthalmic goitre marks a step of forward progress in the surgical management of this disease. It has practically eliminated preliminary pole ligation in our Clinic and has made it possible to complete the operation of subtotal thyroidectomy in one stage upon a great majority of our patients. It has saved for us many of those delirious and desperately toxic cases which previously died before any operation could be done upon them, and it has almost completely done away with post-operative thyroid reactions. It has been a real boon to the patient suffering from exophthalmic goitre or primary hyperthyroidism.

We have now been employing Lugol's Solution as a preliminary preparatory method for 20 months, but our confidence in and progress with the method has come only in the last few months.

Dr. H. M. Clute of this Clinic is reporting at length upon the effect of the administration of this drug in 200 cases.*

During this year, up to July 1, 1925, out of 380 thyroid operations upon 358 patients, 116 have been upon patients with primary hyperthyroidism or exophthalmic goitre. Out of this number 100 were completed in one stage, 16 in two stages by two subtotal hemithyroidectomies, and no preliminary ligations were done.

During the year 1924, 701 operations were done on 499 patients, 206 being upon patients with primary hyperthyroidism or exophthalmic goitre, of which number 90 or 43.6 per cent were done in one stage, 65 or 31.5 per cent in two stages, 31 or 15 per cent in three stages, and 11 or 5.3 in four stages, 4 or 1.9 in five stages. There are still 2 to be finished. Three died before completion.

In the year 1923, but 56 or 37.8 per cent were done in one stage. These figures are given to demonstrate our progressive change from the multiple stage to the one stage operative procedure made possible solely by the employment of Lugol's Solution and preoperative rest in bed.

We wish distinctly to stress the point that Lugol's Solution was not intended as and is not a cure for exophthalmic goitre, that it is solely a method of preparing patients for operative procedures so that they will endure them more safely and that a lessened number of steps may be employed. We are constantly receiving patients who have had Lugol's Solution, without permanent effect, for months before coming to the Clinic, and we have ourselves given Lugol's Solution for long periods of time to patients upon whom we have operated for exophthalmic goitre and not removed a sufficient amount of thyroid tissue, with the result that thyroidism has persisted and they have not been cured. This would be the ideal type of patient to treat with Lugol's Solution if it would accomplish lasting relief. It has not produced a single cure in any of these patients, who have taken it very conscientiously because of their desire to avoid re-operation, if possible. In no case has it been possible, where thyroidism has persisted, to avoid further operation and extensive removal of the thyroid remnants.

The diagnosis of exophthalmic goitre, when frankly typical, is so simple that it is hardly possible to mistake it. The determination, however, as to the possible presence of thyroid toxicity in a borderline case with no goitre, no exophthalmos and few if any of the typical symptoms of the disease in an obviously neurotic individual has been extremely difficult and uncertain. This uncertain situation has been made distinctly more uncertain now, however, by the fact that a great number of patients of this type now arrive at the Clinic after having been upon Lugol's Solution for some time, thus complicating further an already difficult situation and often necessitating sending the patient home to return for diagnosis after Lugol's Solution has been omitted for some weeks.

We urge, therefore, that Lugol's Solution be not administered to patients suspected of thyroidism until the diagnosis has been proven by critical clinical and basal metabolic studies.

We further urge, if operation is to be undertaken upon a patient with exophthalmic goitre, that he be sent to the surgeon who is to operate upon him or her, not having had Lugol's Solution, for two reasons: one, in order that the Lugol's Solution may be given under the observation of the person or persons who are to do the operation, and two, that they may thus be aware of the patient's condition before Lugol's Solution was given and also the degree of benefit obtained from its use, permitting them in this way to make valuable clinical observations as to the possible need of a divided stage operative procedure in those cases dangerously toxic before Lugol's administration and not markedly improved after its employment. While Lugol's Solution is of surpassing value in eliminating the necessity of multiple stage procedures, it must not for a moment be considered that every patient who has been prepared with Lugol's Solution can safely withstand a subtotal thyroidectomy in one stage.

As we have elsewhere reported, it is distinctly possible that the apparent improvement following the use of Lugol's may be so great that one is led to do a complete operation, only to have the patient die in intense thyroidism. Such a misfortune has occurred in our hands and we have therefore urged, regardless of the degree of improvement following the administration of Lugol's Solution that one have clearly in mind the intensity of the thyroidism as it existed previous to the use of Lugol's Solution, and that with this in mind, the operation be divided into two stages in the form of two subtotal hemithyroidectomies if the slightest doubt exists as to the individual's ability to withstand the entire operation in a single stage.

We have by cautiously advancing our line of operability largely eliminated our previously employed multiple stage procedures. We have abandoned that operative plan which gave us such a low mortality rate, however, by a gradual transition, undertaking single stage procedures only as we have become familiar with, and more confident of, and more experienced with the effect of Lugol's Solution and the post-operative reaction of cases operated in a single stage after its administration.

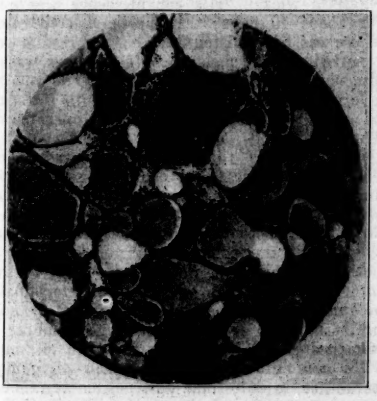
We strongly urge that the change from multiple stage procedures to that of single stage methods after the preparation with Lugol's Solution be not made abruptly by surgeons oper-

*The Effect of Lugol's Solution and Rest in the Surgery of Exophthalmic Goitre. By Dr. H. M. Clute, sent for publication in Journal of the American Medical Association.

ating upon patients with thyroid disease, but that the change be accomplished gradually and only after an extended experience with the method.

After all is said and done, operative cautious-

CASE Ia. Primary hyperthyroidism with well-marked hyperplasia. No iodine feeding. Iodine content .279 mg. per gram of dried gland.



CASE Ib. Same case after three months iodine treatment. Note change in histological picture and degree of involution. Iodine content 3.044 mg. of iodine per gram of dried gland.

ness in thyroidism will always be better than daring; one added operative step which may conceivably be unnecessary still permits us to observe the cured patient with the thought that we have perhaps added a little to his discomfort, prolonged somewhat his hospital stay, and increased perhaps a little the expense of the procedure.

How trifling, however, do these arguments appear when, in our endeavor to avoid these disadvantages by a one stage procedure, a fatality occurs. Then indeed would we, the patient and his friends, welcome the opportunity to reconsider the decisions. Operative procedures upon a patient determined to save time or inconven-

CASE IIa. Primary hyperthyroidism. No iodine feeding. Iodine content not computed.

CASE IIb. Same patient after iodine feeding for several weeks. Note degree of involution. Iodine content 1.5 mg. of iodine per gram of dried gland.

ience must be quite certain of their security to be justifiable, and where doubt exists as to the outcome, a considerable number of possibly unnecessary procedures more than offset a single stage fatality.

Since the employment of Lugol's Solution in this Clinic we have observed a higher percentage of myxoedema following subtotal thyroidectomy than was the case before its use, a situation which we believe is entirely explained by

the fact that the type of thyroid tissue remaining after thyroidectomy in patients who have had Lugol's Solution is much less active than that left in patients who have not had Lugol's Solution.

This histologic change was shown by Dr. Richard B. Cattell, working in this Clinic, in an article recently published in this JOURNAL,* and two illustrations are shown from this series illustrating the type of tissue seen before the administration of Lugol's Solution and after, from which it will at once be evident that the secretion coming from the same amount of remaining tissue in these two types would be quite different, and that with these facts in mind it is necessary to leave behind somewhat more of the Lugol's converted tissue in the hyperplastic goitre than was the custom previous to the employment of Lugol's Solution, to insure an adequate supply of thyroid secretion.

*The Pathology of Exophthalmic Goitre. By Dr. Richard B. Cattell. Boston Medical and Surgical Journal, May 21, 1925.

OBSERVATIONS ON ONE THOUSAND APPENDECTOMIES

BY MARTIN T. FIELD, M. D., F. A. C. S., SALEM, MASSACHUSETTS

THE common things in Surgery, while not so spectacular or thrilling as some of the rarer diseases, are, after all, the most vitally important. Personal observations in a large number of cases are of great benefit to the operator in many ways. Impressions are created which influence his work. Deductions are made which might not stand the test of further experience, but are, I believe, worthy of record.

Many of the appendicitis problems have been settled to the satisfaction of both medical man and surgeon. The period of watchful waiting, in acute appendicitis, has passed. Many years ago, a prominent surgeon stated that he watched his acute appendix case with a scalpel in his hand. I believe that it was Dr. J. S. Mixter who replied that he preferred watching his patient with the appendix in his hand. This very forcefully expresses our present attitude toward acute appendicitis—an attitude which has helped to reduce the mortality from nearly 20% to a low rate.

Bernheim, in a recent paper, states that the good reports in appendicitis come from the larger and well known clinics, and are not a true measure of the results obtained in the smaller hospitals throughout the country where most of this work is being done. He believes that the mortality rate, in these institutions, is very much higher. It is his opinion that the College of Surgeons should make an effort to find out the correct status. The answers to a questionnaire sent out by him to several well known surgeons show that, even today, there is considerable disagreement about certain phases of the problem, especially regarding the treatment of late cases with peritonitis. There is much more evidence to show that there is need of further discussion before the matter is closed.

This report is a record of 1124 consecutive cases operated on by me from January 1, 1918 to July 1, 1925. 561 were for acute appendicitis, all stages including general peritonitis; 144 were for chronic appendicitis; and 419 appendices were removed in the course of other abdominal operations. Many of these were pathologic, containing concretions, etc.; others were removed for prophylactic reasons. 92% of these cases were private, being referred by 56 different physicians. The operations were performed in 11 different hospitals. The majority of them, however, were done in the Salem Hospital and the J. B. Thomas Hospital in Peabody. There were five hospital deaths.

REPORT OF FATAL CASES

CASE 1:—Male, aged 38 years. Operation, March 19, 1918 at Salem Hospital, for perforated gangrenous appendix. The appendix was removed and the abdomen drained with 1 cigarette wick. His convalescence was good for about 10 days; then he started to vomit. There was little distention and fair results were reported with enemas. The stomach was washed out which gave relief. On April 5, he vomited a large amount of foul material with intestinal odor and, on the same day, he was operated on. The old wound had almost healed. It was thought that if the stomach was washed out first, general anesthesia could be safely given and the obstruction then could be easily corrected. The terminal ileum was found bound down in a mass of adhesions. At this stage, the patient started to vomit and became cyanotic—evidently gastric contents were drawn into his lungs. The operation was terminated as quickly as possible but he remained cyanotic until the end, coughing up large amounts of bile stained material. He died in 6 hours. This case illustrates the danger of general anesthesia in intestinal obstruction even though the stomach is washed out immediately before the operation.

CASE 2:—Male, aged 40 years. Operation, February 14, 1921 at Thomas Hospital, Peabody, for appendix abscess. The appendix was removed and abdomen drained. One week later he died; the cause of the death was general peritonitis. This unfortunate outcome was never anticipated at the time of operation.

CASE 3:—Male, aged 18 years. Operation, January 4, 1923 at Thomas Hospital, for perforated appendix with general peritonitis. He vomited considerably after the operation but

his pulse was only 100, and his temperature—about 101. The 5th day, his pulse became weaker and went up to 130 and his vomiting became intestinal in character. There was considerable distention and tenderness. As a last resort, a jejunostomy, under novocain, was done. Vomiting continued, however, and he died 8 hours later. The cause of death was a combination of general peritonitis and intestinal obstruction.

CASE 4:—Female aged 2 years. Operation, August 3, 1923 at Salem Hospital for appendix abscess. The appendix was removed and the abdomen drained. The child did reasonably well for about 2 weeks when she developed symptoms of meningitis. The neck was stiff; convulsions were frequent; the child was stuporous, and died about 1 week later in coma. Whether this was the result of the appendix infection or a coincident tuberculous meningitis, I was unable to determine as no autopsy was granted. My guess is that it was non tuberculous.

CASE 5:—Male, aged 67 years. Operation, February 5, 1924 at Salem Hospital, for general peritonitis caused by a perforated, gangrenous appendix of four days duration. The appendix was removed and wound drained. He was a confirmed alcoholic but did well for 4 days and then developed pneumonia which caused his death on the 6th day.

One Other Case:—A woman, aged 55 years. Operation, August 11, 1920 at Thomas Hospital, for appendix abscess. Left the hospital in about 2 weeks with a fecal fistula. It was reported that she died several weeks later at her home, so I suppose this case should be included.

There was no death in the chronic cases and there was no reason to think that the removal of the appendix in the course of other abdominal operations had any deleterious effect on the operative result.

OBSERVATIONS ON DIAGNOSIS

In the majority of cases, the diagnosis was made with the greatest ease. In other cases, its determination was beset with the greatest difficulty. Mistakes will always be made but they will be made less often, if we appreciate the value of the evidence available which, I am sorry to say, was not always done in my own cases.

Sequence of symptoms:—The symptoms of appendicitis—Pain, nausea, and vomiting, localized tenderness and rigidity; elevation of pulse and temperature and leukocytosis are all well known. It is not so well recognized that these symptoms almost always occur in definite order as pointed out by Dr. John B. Murphy. This almost constant finding has been the greatest aid to us in differential diagnosis.

Pain:—This was the initial and most important symptom. It is first felt in the epigastrium or lower down across the abdomen; later it localizes on the right side. I generally distrust the diagnosis when the initial pain is in the right iliac fossa. The typical appendix pain is not generally felt in the right side, in the beginning of an attack, but across the abdomen or in the epigastrium.

Nausea and Vomiting:—These symptoms were not so constant as pain but usually occurred. The average case vomited once or twice. Persistent vomiting did not occur except in severe cases, especially with general peritonitis. A patient with persistent vomiting makes us carefully weigh the evidence before making the diagnosis.

Temperature:—Elevation of temperature and pulse was generally present, often only slight. It is remarkable what extreme pathology can exist with the temperature under 100. A temperature of 103 or more makes us distrust the diagnosis unless it can be accounted for by complications. The pulse rate has been of little help to us in diagnosis. If elevation of temperature comes before the pain, we at once distrust the diagnosis. This point has helped us more than once to avoid surgical interference in Typhoid Fever and other non-surgical pitfalls.

Localized Tenderness and Rigidity:—These signs ranked in diagnostic importance with pain. Their location was often of value to determine whether the incision should be made high or low.

Skin Signs:—Local hyperaesthesia on stroking, pinching, or twisting the skin in the region of McBurney's Point has been present in many cases but we have not found it of great diagnostic importance.

Leukocytosis:—This has not ranked in importance with pain, localized tenderness and muscle spasm or elevation of temperature. In a few cases, however, it has been the determing factor in diagnosis. When the three cardinal symptoms are present, absence of leukocytosis is disregarded.

In about 80% of our cases, the diagnosis of acute appendicitis, confirmed at operation, was made with confidence; in about 10% more, the diagnosis, made with some misgiving, was found correct at operation; in about 10% of our cases, the diagnosis was not correct—either some other pathology was found that needed surgical treatment, or no pathology at all could be demonstrated. Fortunately, most of these cases needed operation anyway, so that no harm was done.

MISTAKES

Patients seen late with general peritonitis often tested our diagnostic acumen. We knew that a general peritonitis existed. What its cause might be, often was a matter of conjecture. Frequently an exploratory operation

had to be done to determine the pathology. In some of these cases of supposed appendix origin, unusual conditions were found:—

CASE 1:—Male, aged 3 years. Operation November 6, 1918 at Salem Hospital. Child sick for 2 days; abdomen tense and tender throughout. Temperature 103; pulse 140. Diagnosis of general peritonitis caused by ruptured appendix was made. A right rectus incision disclosed a large amount of bile free in the abdominal cavity. The appendix, red but otherwise normal, was removed. The incision was then enlarged upward and a gall bladder with a perforation near the fundus was found. Bile could be seen pouring through the perforation. The gall bladder was removed without difficulty and the abdomen drained. Convalescence was uneventful and the child was discharged on the 17th day.

CASE 2:—Male, aged 72 years. Operation, March 19, 1925 at Salem Hospital. Four days previous to this, he was seized with severe pain across the abdomen which persisted. Was seen by me in consultation—the day of the operation. The abdomen was tender and rigid throughout but most marked over McBurney's. Pulse 120, and temperature 101. His general condition was good. The duration of symptoms, etc., made me think the peritonitis was caused by a ruptured appendix. A right rectus incision revealed much dirty watery fluid in the abdominal cavity. The appendix was normal. The incision was enlarged upward and a large amount of this same fluid was evacuated. My belief was that he had a perforation of the duodenum or stomach. Examination of gall bladder, duodenum and anterior portion of stomach disclosed no perforation. I was puzzled. Finally, an indurated mass was felt over the body of the pancreas. The gastrohepatic omentum was opened and this mass was found to be an indurated ulcer on the posterior wall of the stomach, somewhat adherent to the pancreas. There was a perforation large enough to admit the tip of my little finger. The hole was sutured and the omentum was brought up through the gastro colic omentum and stitched over the suture line. The lesser peritoneal cavity was drained. The foramen of Winslow was patent and when the perforation occurred the fluid drained into the abdominal cavity in large amounts. Convalescence was smooth. Two weeks later he insisted on having an old painful irreducible hernia repaired. This was done under novocain and he left the hospital well—two weeks later.

Many more cases of mistaken diagnosis could be cited where operation disclosed perforation of intestinal ulcers, intestinal and mesenteric tuberculosis, pelvic inflammations, mesenteric thrombosis, etc. When one opens an acute abdomen which is supposed to be an acute appendicitis, the possibiliy of error must be entertained and he should be prepared for anything. If the appendix is not sufficiently diseased to account for the clinical findings, the patient is surely "out of luck" unless the true cause is determined.

We believe that it is fallacious to teach that it is safe to operate on appendicitis the first 48 hours. It is not so much the number of hours as the degree of virulence. Several times at operation the appendix was found ruptured or was unavoidably ruptured during the course of its removal inside of 24 hours. Other cases going on for 72 hours, or more, we were able to sew up tight.

APPENDICITIS IN YOUNG CHILDREN

Our experience has been that of Bolling and others that nearly all the children under five years of age came to the operating table with the appendix ruptured. I have seen in consultation many cases of right sided pneumonia, diagnosed as appendicitis, but operation was fortunately avoided in all cases. In one case, I almost fell into the trap myself. One diagnostic point to bear in mind is that a child with an acute abdomen will not sleep, himself, not let any one else sleep, whereas with other diseases, even pneumonia, the child frequently sleeps for long periods.

COINCIDENT APPENDICITIS

It should not be forgotten that appendicitis may occur coincidently with other disease and can be easily overlooked.

Male, aged 18 years; entered the Salem Hospital June 16, 1919, for the relief of dyspnoea and substernal pain. His pulse was 160; respiration 54; and he was in collapse. He was under treatment for pulmonary tuberculosis. Chest examination disclosed a right pneumothorax which was confirmed by X-ray examination. A small trocar was inserted and a small snug fitting rubber catheter was inserted through the canula, with its other end in a basin of water. A large amount of air under pressure escaped and the pain was immediaely relieved. The tube was clamped. Twice after this, the tube was unclamped and the air was allowed to escape. The last time, a syringe was attached and the piston gently withdrawn. A little serous fluid was evacuated with the air. The catheter was now withdrawn, fearing that a pyo-pneumo-thorax would be caused. That day the patient complained of some pain in the abdomen. I thought it was caused by his chest condition. The next day also, he complained of it. Finally, the following day, he stated that the pain was so bad that he could not sleep all night. Examination at this time, showed that the whole lower abdomen was rigid, and tender, especially over McBurney's, and there could be no possible connection between abdomen and chest. Under novocain, a perforated gangrenous appendix was removed. It was humiliat-

ing to know that this had been going on for over two days unobserved by me, because my whole thought was centered on the chest. Fortunately, he recovered. Later, I learned that he went to a sanatorium and died of tuberculosis.

Another patient developed a severe attack of appendicitis during the convalescence from perforation of duodenal ulcer. Fortunately it was recognized and the patient was operated on and recovered.

When should we operate?

Our rule has been to operate on all cases as soon as the diagnosis is made—the first day or any other day. There have been some exceptions. A few cases with much abdominal distention or with chest or other complications were held over and treated according to Ochsner's Method until a more auspicious time. The great majority were done at once, some of them operated on under novocain. The very sick cases were operated on as quickly as possible and with a minimum amount of trauma.

CASE:—Female, aged 66 years. Entered Salem Hospital April 15, 1925. She had been acutely ill for about 1 week with abdominal pain, persisting vomiting, and inability to move bowels. Abdominal distention was great; cough was also troublesome. Temperaure 99; pulse 136 and weak. It was felt that her condition was surgical but delay was deemed advisable. Her stomach was washed out, and salt solution was given under the skin, and enemas gave some gas results. She was still quite distended; salt and glucose were given by rectum and her condition improved slowly. Two weeks after entry to hospital—Barium Enema was given which showed a filling defect in sigmoid, and the X-ray diagnosis was a probable carcinoma. Her temperature was normal most of the time; her pulse improved, but varied between 100 and 120. Seventeen days after entry—May 2, a right rectus incision disclosed an appendix abscess, which partly obstructed several loops of small intestine and sigmoid. The appendix was removed and the abdomen drained. She slowly recovered and left the hospital, well, 26 days later. We believe that in her case, an earlier operation would have been unwise.

Other milder cases which were subsiding were allowed to completely recover and were then operated on.

CHRONIC APPENDICITIS

Cases of this type were operated on under the following conditions:—

1. If they gave a history of acute attacks.
2. If local tenderness, pain or stomach symptoms of a troublesome character which occurred in young adults that could not be accounted for in any other way. Many of these cases had careful X-ray, genito urinary and gynecological examinations first. In nearly all these cases, a large incision was made and the abdomen was carefully explored at the same time.

APPENDECTOMY COINCIDENT WITH OTHER OPERATIONS

In operations on the gall bladder, stomach, uterus, and adnexa—the appendix was generally removed, especially in the young. If the appendix could not be safely delivered through the upper abdominal incision, and its removal was indicated, a second, small incision lower down was made. If extensive operations were performed, leaving raw and oozing surfaces, we frequently did not remove the appendix, following the advice of W. J. Mayo who believes that the danger of colon contamination is a real danger and must be taken into consideration.

Operation:—The following technique has been used in nearly all our cases:—*1.* Right rectus incision a little to the inside of the linea semi-lunaris, cutting through both layers of aponeurosis. The rectus muscle is retracted inward and the peritoneum is opened. The incision is placed high or low depending on the probable location of the appendix which fact can often be ascertained. Post operative hernia, even in drained cases, seldom follows as the powerful intact rectus muscle makes an effective barrier. A good working incision is always made. If the diagnosis is in doubt, we usually go through the muscle so that the incision can be easily lengthened either way.

2. A retractor is put in and the abdominal wall (inner side) is lifted up and small packs are accurately placed, pushing the small intestine away from the right iliac fossa which leaves the more or less fixed cecum, the only part that is needed to be exposed. The lower part of the cecum is steadied with a piece of gauze, in the left hand, and the appendix is hooked out with the right index and middle fingers. To allow the small intestine to get into the wound and become contaminated is, I believe, a common cause of spreading the infection. The small bowel should be out of sight during the course of the operation until the peritoneum is sutured. If, in brushing away the small intestine, the right iliac fossa is left bare, it is reasonable to conclude that we are dealing with a non descended cecum and frequently the incision has to be extended upward. It is not uncommon, in our experience, to find the tip of appendix adherent to under surface of liver or gall bladder, or situated in a retro-cecal position above the lower pole of the right kidney.

3. Mobilization of the appendix:—The fixed appendix can often be mobilized to a remarkable degree just as easily and effectively as the cecum or sigmoid by stripping up the outer avascular peritoneum. Many adherent appendices can be brought outside the abdomen without vessel injury, and safely and easily removed in this way. This point has not been fully appreciated. Of course, if the appendix is imbedded in an abscess the situation is more diffi-

cult. We rarely remove the appendix at the cecal side first, as there is more danger of soiling.

4. After tying the vessels, the appendix is removed with the cautery or with the scalpel, dipped in 95% carbolic, and then the stump is touched with carbolic and alcohol or even iodine.

5. The stump is inverted with silk, linen or 0-chromic catgut. If the case is drained, silk or linen is never used. If the stump of the cecum is badly indurated or infected, we tie the stump of the appendix with chromic catgut No. 2, and we do not invert. If the cecum is lacerated, special effort is made to widely infold the injured part and thus prevent fecal fistula. The meso-appendix is frequently tied over the inverted appendix stump.

6. An effort is made to remove the appendix in every case whether an abscess is present or not. We have noticed, that as a rule, its removal makes the convalescence much smoother. An experienced operator can tell in a minute whether it is feasible. It is unwise to traumatise too much or cause undue bleeding—both frequent causes of fecal fistula and peritonitis. In 12 of our cases, only, the appendix was not removed.

7. If there is perforation or if frank pus is found, drainage is always instituted. We use a soft cigarette wick. In a few cases in which gauze was used it was fully quarantined with rubber dam. Hard wicks are never used.

8. The abdomen is sewn in layers. Care must be used not to injure the deep epigastric vessels which lie very close to the inner edge of the peritoneum especially at the lower part of the incision. The drain comes out of the bottom of the incision. The skin is sewn with black silk.

9. Drains, in pus cases, are left in 5 or 6 days and gradually withdrawn and they're usually not reinserted. If wounds break down we use frequent hot applications often without the removal of the stitches or the introduction of wicks after the method of Watkins's.

Morbidity:—The length of convalescence is a matter of extreme importance. I am sure that the injudicious and prolonged use of wicks in all infected cases increases morbidity tremendously. Timely and proper use of adhesive straps will bring together a gaping skin wound in a few days that otherwise would require many weeks to completely repair. Our undrained cases were usually out of bed in a week or less, often with the stitches in, especially children, and home in 10 or 11 days. The majority of the drained cases went home in about 2 weeks, and further dressings if necessary, were done at home or in the office.

Post-operative Treatment:—The routine orders for the simple case are Morphine Sulphate gr. 1/6 p. r. n., rectal tube and purgative enema p. r. n., cracked ice or sips of water in small amounts; nourishing liquids as soon as the stomach is tolerant and light, house diet is generally given by the 4th day. If there is troublesome vomiting or regurgitation, of small amounts, of bilious fluid or epigastric distention, the stomach is washed out. If indicated, and it frequently is, salt solution, or 5% glucose solution is given by rectum. Salt solution is not given under the breast but the needles are pointed downward toward the back. At times, novocain is added to the solution as advised by Bartlett. In peritonitis cases, the head of the bed is raised on blocks or pegs—then the correct position is assured. If a back rest is relied upon, often we do not get a true Fowler position, the abdomen being almost horizontal. If the cecum is damaged, care should be used in giving large enemas as there is danger of perforation. Otherwise, hot suds and milk of molasses and purgative enemas are freely used. Pituitrin is seldom used and only with a rectal tube in place. Occasionally, where intestinal obstruction comes on during the suppurative period, a high enterostomy is done with a small T-tube. The intestine has always closed up without operation and time has taken care of the obstruction. Cardiac stimulants are seldom used. We believe, as Crile does, that the judicious use of salt solution, morphine, gastric lavage and hot packs over abdomen are the life saving measures in the post-operative treatment of appendicitis.

In conclusion, I wish to state that the sayings:—*"What can be foreseen, can be prevented"* and *"It is not necessary to lose a life to learn a lesson"* are nowhere better exemplified than in the surgery of appendicitis.

THE END RESULTS OF COMPRESSED FRACTURE OF THE SPINE

BY MARK H. ROGERS, M. D.

THIS is a report of the results of eight cases of compression fracture of the spine without paralysis that were under treatment during the year 1924. These cases have been followed a sufficient length of time to determine some of the effects of this type of injury and to discuss the question of the severity of this lesion, and its effect on the resumption of occupation.

Whenever the question of treatment is brought up for discussion among a group of men dealing with injuries, there seems to be a difference of opinion as to the severity of this lesion, whether these cases get back to work in a reasonable time, whether they need much or little treatment, and even whether they would get well even if nothing were done.

It is well known that we meet cases that in years gone by have had an injury to the spine and their X-rays indicate that they had a compression fracture of the spine which had never been recognized. Such cases have led a certain group to say that it is not such a serious injury and that they do not need very much treatment or care. But it is clearly in my mind that, fifteen years ago, when these cases were first studied at the Massachusetts General Hospital, first by John B. Hartwell, and later by Brackett and Mixter, there were many cases that had been unrecognized and we were seeing many cases that had a permanent disability as a result. This was so much so that Brackett and Mixter wrote a paper on the question of bone-grafting such cases in order to relieve the symptoms of pain and weakness, and to stabilize the motion in this area. It was strongly suggested on account of the many bad results that it might be a better policy to stabilize, even in the early stages, in order to assure a good result. This indicates that at that time we were seeing bad results, probably from too little treatment and from non-recognition of the injury. We have therefore two different conceptions of the severity of this lesion, one that it is a rather minor injury and ought to get well without much attention to treatment, and the other that the results are not good as a general rule.

This small group of cases to be reported was not handicapped in its recovery by the psychological problem of industrial compensation, and I believe that they all have made definite effort to resume their occupation without considering the compensation problem. Some of them were industrial cases, but of such a class that we have very little trouble in estimating real trouble from imaginary. The railroad cases reported are compensated, but in such a way that it is for their interest to get back as soon as possible and the psychology of ignorance, and fear of loss of compensation is not a factor in this group. So I believe we can judge about what such a case can do by the results of this series.

I am quite certain that we used to see more cases of fracture that were not diagnosed as such for periods of months after the injury. It is certainly an easy thing to overlook a compression fracture. These cases were all first treated in well-equipped hospitals with adequate X-ray departments, and yet one of these cases stayed in such a hospital for two days and then went home with a negative diagnosis. Luckily he was able to get back to the same hospital in about two weeks and then the diagnosis was made. A recent case was injured by a fall of fifteen feet, the accident occurring in a small town. In two days he was sent home to Boston and two weeks later was examined. He had the clinical signs of a compressed fracture, the type of injury, the localized tenderness which seems to be quite definite, and of course the restriction of motion that would accompany a severe back injury. He was X-rayed with the knowledge that it might be a compression fracture of the twelfth dorsal and the X-ray report came back negative. On careful examination and a repeated X-ray it was clear that there was a fracture of the twelfth dorsal. It would have been perfectly easy to overlook this fracture and then an X-ray six months later would have shown the typical end-result of a compression of that vertebra. Generally the amount of compression is very slight at first, and evidently this develops later as the body weight is a definite factor in the development of the compression.

The X-ray findings in most of the cases of compression fracture are rather uniform and depend on the length of time from the injury to the first X-ray. If the X-ray is taken within two weeks of the injury there is very little evidence of compression of the vertebra. A very clear and well-focused ray, which shows bone detail may show a break in the cancellous striations and generally an irregularity of the cartilagenous surface. There may be a slight amount of loss of depth of the vertebra, especially on one side, but not nearly so much as later. Later on there is developed the wedging of the vertebra that is so characteristic of an older fracture. At this stage there is a greater density of bone and the normal striations of the body are lost.

With the most careful treatment and protection possible I have never seen an X-ray taken in the later stages that did not show a greater amount of wedging than was shown in the early X-ray. But with careful treatment I have not noticed the development of an actual knuckle or kyphos that we were accustomed to see in the older and unrecognized cases that were called Kümmell's disease.

I think the interesting point to discuss is the amount of treatment these cases need in order to obtain the maximum return to normal and in this paper I shall indicate the outline of treatment and the results obtained, especially giving the occupation of the individual. There has been some variation in the amount and length of treatment prescribed according to the seeming severity of the original accident and also the type of work that the individual performed. Not included in this series was a man who injured his spine while working as a mechanic. It was discovered that he was an expert accountant so that he resumed work within two months in an office wearing a protective jacket, whereas if he had gone back to his mechanical job it would probably have required six months and complete freedom from any support.

It is very easy to control the pain in a compressed fracture of the spine. Generally simply lying in bed without much motion is sufficient but there has always been the danger of their being discharged as simple back strains, be-

cause the pain has disappeared and it is thought that there is nothing wrong. But they come back somewhere. We known that in some cases the original accident seems slight and the immediate symptoms are not severe enough for the patient to be confined to bed. Of course this was the usual course some years ago and I believe it to be the reason we had such poor results.

My choice of immediate treatment is the exact copy of the early treatment of acute tuberculosis, a plaster shell for complete immobilization with all the details of nursing care, such as turning and bathing. This should be insisted upon if the injury has been serious and I am inclined to think it is the proper procedure in all cases. The six weeks of hospitalization and intensive treatment probably are not wasted. If a plaster jacket is used instead of the shell then there should be recumbency for a like period. I do not believe the upright position is a favorable one and a jacket is not sufficient in a good many cases. Oftentimes a jacket is applied early so as to allow the patient to be transported home, but then recumbency is indicated. At the end of six weeks most of them were allowed up with support. My observation is that they do not resume hard work for about four months. I would prefer to allow them up first in a plaster cast and then later a brace of some kind. In order to safely do hard work they must leave off all braces and be at least a month without any support and without evidence of pain or weakness.

This outline of treatment indicates that I believe in rather intensive treatment at first and then a gradual reduction of support. This has taken at least four months and the results seem to justify such a course. In the case of certain occupations that require quick motions and at times heavy work I do not believe four months is sufficient time. A man possibly could go back to the job of a brakeman on a passenger train earlier than he could if he were a brakeman on a freight train and constantly climbing cars, jumping cars while in motion and setting hand brakes.

The following eight cases are briefly reported to show the type of accident, the approximate time of disability, the type of work to which they returned and the outline of treatment. These cases were injured either in 1923 or 1924 and their end-results are well known in 1925.

Case 1. L. M. N. Male. Age 30. Occupation: freight brakeman. Accident on the railroad. Compressed fracture of the first lumbar and fracture dislocation of the right ankle.

The injury to the ankle required an open operation and from this he has a very good result, regaining more than half the motion and ability to use it. On account of the long disability with the ankle he was kept recumbent for two months and then was fitted to a leather jacket. Eight months after the accident he went back to his job as freight brakeman but did so-called light work for two months, mostly on account of the ankle. No symptoms from spine.

Case II. M. R. T. Female. Age 45. Fell five stories in elevator well. Compressed fracture first lumbar and right os calcis.

Treatment: Bradford frame, plaster jacket after six weeks, and practical recumbency for about three months. This case wore support in the form of a leather jacket and brace for about nine months, although she was doing her usual occupation of housework in six months time. The os calcis fracture caused symptoms longer than the spine did. No symptoms referable to the spine, although she has always had a so-called weak back for which in years past she has had orthopedic treatment.

Case III. L. H. Male. Age 35. Occupation: manufacturer.

October 1923. Fall of three stories with compressed fracture of the third lumbar.

Treatment: plaster shell for six weeks followed by jacket and partial recumbency for six more weeks. At the end of three months back brace was applied. This was worn for two months. At the end of three months he was back at work with a support, but he was so situated that he could work that way. No symptoms in 1925.

Case IV. H. C. P. Male. Age 30. Occupation: freight brakeman. Fell from a freight car. Compressed fracture first lumbar.

This case was taken to a hospital and kept overnight, and the diagnosis was not made until two weeks later when he reported to the hospital on account of increasing pain. He was X-rayed at a second hospital within that two weeks and again the diagnosis was missed.

Treatment: plaster cast and two weeks in the hospital until the symptoms disappeared. Then he went home. Absolute recumbency for six weeks. At the end of two months a leather jacket followed by a back brace. This man showed a rather slow recovery. At the end of five months he was not able to resume his usual occupation, but worked at light work for three months when he went back to braking without any symptoms.

Case V. W. B. Male. Age 30. Garage owner.

On June 12, 1924, he fell two stories, got up himself and immediately afterwards became paralyzed from the waist down. This man was seen by me three hours later and by that time he had a gradual return of power to the lower extremities and return of sensation. This case was seen at a hospital in another city and there was no question but that there was complete paralysis at first. The next day motions and sensations were normal. The X-ray showed a slight compression fracture of the first lumbar.

The treatment was absolute recumbency on a Bradford frame for six weeks, followed by plaster jacket and then brace. This man was back at work in four months and at the end of six months he was doing his usual mechanical work. He was the head of an automobile agency but he says that he was able to do anything he wanted to do about a car.

CASE VI. R. K. Male. Age 50. Freight conductor.

April 1924, he rolled under a freight car and fractured the first lumbar. Treated in a hospital for three months, plaster bed and Bradford frame and then went home wearing a back brace. Went back to work in six months without symptoms.

CASE VII. S. F. N. Male. Age 32. Telephone lineman.

Fell from telephone pole on September 12, 1924, receiving a compressed fracture of the first lumbar and a fracture of the os calcis.

Kept in bed for two months on a plaster shell and then up in a plaster jacket and later a leather jacket. Returned to work in February, six months after the accident, doing outdoor work, but still not allowed to return to his full duty of climbing poles. This case has not been tested out enough to know whether he can do everything he did before the accident because he is still kept on ground work, chiefly on account of the os calcis.

CASE VIII. G. H. W. Age 45, Mason Foreman.

November 17, 1923. Fell a distance of eight feet and sustained compressed fracture, first lumbar, and a fracture of the left os calcis. Treated in hospital with absolute recumbency, plaster shell for eight weeks, followed by plaster jacket and leather jacket. Six months later returned to light work. With certain periods of intentional staying away from work, mostly on account of the foot, he has been working as a supervising foreman. He says he is not handicapped by the spinal injury, but is definitely handicapped by the fracture of the os calcis, although able to do his type of work.

These cases have received practically a routine treatment which can be summarized as six weeks absolute recumbency, followed by complete fixation in a plaster cast or leather jacket for six more weeks. Then gradually more freedom is allowed, while protected by a back brace until he can work without symptoms. If his work is not the hardest type he can begin while wearing some form of support, but if it is of a type that requires lifting and stooping, all support should be off before the end result is known.

In this series of cases it required on an average six months before the symptoms disappeared, although many were at work before this time. On examination they showed practically no kyphos and almost no restriction of motion. If there is much restriction of motion it is generally due to secondary changes in and about the fracture, such as hypertrophic overgrowth. The object of the immediate fixation which is continued long after the first symptoms of pain have disappeared is to prevent the secondary changes that we used to see and which were possible causes of permanent damage.

In studying the X-rays taken a year or two after the injury, in every case the vertebra shows an increase in the narrowing of the body. As a rule the X-rays taken immediately after the injury show very little narrowing, but this evidently increases in spite of complete fixation, but without affecting the result.

FURTHER OBSERVATIONS ON THE ADMINISTRATION OF DOCHEZ'S SCARLATINAL ANTITOXIN

BY C. L. THENEBE, M.D., HARTFORD, CONN.

SINCE reporting an article on the intravenous administration of Dochez's scarlatinal antitoxin, May 14, 1925, I have used the antitoxin on 42 additional patients. Of the 42 patients, 12 were treated with antitoxin obtained from Dr. A. R. Dochez,* 26 with antitoxin obtained from the Lilly Company, and 4 with antitoxin obtained from the Parke Davis Company. The end results were approximately similar to the results obtained in the cases reported May 14th. A very brief case report follows on five cases simply to illustrate some of the facts brought out in the discussion.

CASE No. 4805. Age 29, female. Admitted to the Hartford Isolation Hospital with the typical symptoms and signs of scarlet fever on the second day of disease. She was given 10 c.c. of Lilly's concentrated scarlatinal antitoxin intravenously. She developed a severe chill 20 minutes following the injection which persisted 30 minutes. There was a rise in temperature with the incidence of the chill, 103.2 to 104.2, followed by a fall in temperature to 100.2 within 12 hours. No complications of scarlet fever occurred.

CASE No. 4828. Age 39, male. Admitted to the Hartford Isolation Hospital with the typical symptoms and signs of scarlet fever on the third day of disease, but apparently only three hours after the appearance of the rash. He was given 30 c.c. of Lilly's concentrated scarlatinal antitoxin intravenously. He developed a severe chill 30 minutes after the injection

*I express my gratefulness to Dr. A. R. Dochez, the Lilly Company and Parke, Davis & Co. for the supply of antitoxin.

which persisted 30 minutes. There was a rise in temperature with the incidence of the chill, 101.4 to 104.4, followed by a fall in temperature to 98.6 within 24 hours. No complications of scarlet fever occurred.

CASE No. 4842. Age 42, male. Admitted to the Hartford Isolation Hospital with the typical symptoms and signs of scarlet fever, on the second day of disease. He was given 10 c.c. of Lilly's concentrated scarlatinal antitoxin intravenously. He developed a moderately severe chill one hour after the injection which persisted for 18 minutes. There was a rise in temperature with the incidence of the chill 103.4 to 105.6, followed by a fall in temperature to 99.8 within 10 hours. No complications of scarlet fever occured.

CASE No. 4851. Age 6, female. Admitted to the Hartford Isolation Hospital with the typical symptoms and signs of scarlet fever on the third day of illness. She was given 5 c.c. of Lilly's concentrated scarlatinal antitoxin intravenously. She developed a moderately severe chill one hour after the injection which persisted for 15 minutes. Rise in temperature with the incidence of the chill, 101.4 to 103.8, followed by a fall to 99 within 12 hours. She developed an acute arthritis of the right knee as a complication. The dose of the antitoxin in this case was probably inadequate.

CASE No. 4766. Age 23, male. Admitted to the Hartford Isolation Hospital with the typical symptoms and signs of scarlet fever on the second day of disease. He received 10 c.c. of Dochez's unconcentrated scarlatinal antitoxin intravenously. No reaction developed, nor no complications occurred. This case was added because one month after discharge from the hospital (hospitalized 23 days, first admission) he was readmitted with the typical symptoms and signs of scarlet fever. He was given scarlatinal antitoxin a few hours after the appearance of the rash during the first admission. The administration of scarlatinal antitoxin before the development of an active immunity, with the harboring of the organisms until after the disappearance of the passive immunity, would explain the second attack. Will the future reveal more second attacks of scarlet fever in those not actively immunized?

DISCUSSION

Of the 42 patients to whom scarlatinal antitoxin was administered, 32 (76%) received intravenous injections and 10 (24%) received intramuscular injections. There was no mortality.

No patient to whom unconcentrated scarlatinal antitoxin was administered intravenously developed a chill. Seven (16.7%) of the 42 patients developed a chill—five (15.6%) of whom received concentrated antitoxin intravenously and two (20%) received concentrated and unconcentrated antitoxin respectively intramuscularly. The latter two patients were both sensitized to horse serum when the injection of antitoxin was made.

Fifteen (35.7%) of the 42 patients developed a serum rash, eight of these having serum administered intravenously and seven intramuscularly. The serum sickness was in some instances extremely severe. The amount of antitoxin injected or whether the same is concentrated or unconcentrated seems to have no bearing on the appearance of the serum rash.

Of the 42 patients to whom antitoxin was administered, five (11.9%) presented visible complications after antitoxin administration; six (14.2%) presented visible complications at the initial entrance physical examination before the antitoxin administration. Antitoxin administered to patients before the expiration of eight hours after the appearance of the rash, presented no complications, unless complications were present before the antitoxin administration. Too much stress apparently can not be laid upon this fact, that the earlier the antitoxin is administered, the less likelihood there is for a complication to develop.

The use of concentrated antitoxin was abandoned for intravenous administration because of the incidence of the severe chill. The amount of antitoxin injected apparently had nothing to do with the appearance of the chill. Of course, it is a safer procedure to determine individual sensitivity to horse serum before administering antitoxin intravenously; but, it seems that the immediate maximum concentration of antitoxin in the blood stream obtained by intravenous administration should offset the untoward effects in many instances. Intravenous administration of antitoxin causes a more prompt fall in temperature than intramuscular administration.

The dosage of scarlatinal antitoxin should depend upon the age or size of the patient, the severity of infection, the method of administration and the content of antitoxin in the serum. Better results are obtained with larger doses than with small doses in preventing complications, in other words an excess of antitoxin in the blood stream is desirable. A complication is not prevented if the complication is present before the administration of the antitoxin. If the dose of antitoxin is not adequate one would expect a complication to develop just as it would without the antitoxin administration.

A definite statement in regard to determining whether or not complications subside more rapidly in patients to whom antitoxin has been administered or not administered, is difficult to ascertain, because the virulence of the infection and the resistance of the patient is not deter-

mined prior to the injection, unless the toxemia and severity of the symptoms and physical signs can be taken as an index of the resistance of the patient and the virulence of the infection.

The question of shortening the period of hospitalization for the patient treated with scarlatinal antitoxin arises frequently. It seems reasonable that this period should be shortened depending upon the individual clinical picture of the patient. But, as with the carrier of the virulent bacillus of diptheria, should it not with scarlet fever, depend upon the absence of the specific streptococcus hemolyticus, as well as the clinical picture? From a practical standpoint the future may make this procedure possible and feasible.

The possibility of bactericidal properties of scarlatinal antitoxin would be difficult to prove, as the antitoxin probably represents just what its name implies, i. e. antitoxin. Further study will be necessary for any definite conclusions.

SUMMARY

(1) Unconcentrated antitoxin is the safer procedure for intravenous administration.

(2) Concentrated antitoxin is a safer procedure for intramuscular administration

(3) The earlier the antitoxin is administered, the dosage being adequate, the less the incidence of complications.

(4) Intravenous scarlatinal antitoxin causes the earliest fall in temperature.

(5) The quantity of antitoxin administered does not seem to affect the incidence of a chill or the development of a serum rash.

(6) Further study is necessary to prove the presence of bactericidal properties of the antitoxin; the serum probably represents an antitoxin only.

REFERENCE

Thenebe, C. L.: Observations on the Administration of Dochez's serum intravenously. Boston Med. and Surg. Jour., May 14, 1925.

CONVALESCENCE, VIII: NOTES ON CONVALESCENT WORK IN THE U. S. ARMY (CONTINUED)

BY JOHN BRYANT, M.D., BOSTON

III. CONVALESCENT WORK: DETACHED DUTY FOR THE DIVISION OF INTERNAL MEDICINE, S. G. O.

DURING November and December, 1918, the writer was for the greater part of the time on detached duty investigating the hospital care of chronic patients. Soon after being assigned to this duty, there was submitted by him to the Chief of the Division of Internal Medicine, S. G. O., the following memorandum:

THE CHRONIC INVALID IN THE ARMY: TREATMENT

Lee (*Mil. Surgeon*, 1918, XLVII, 283) has directed attention to the value to the Army of care for little things, i. e., minor surgery, in decreasing the noneffective rate. He has referred to the advisability of concentrating superior surgeons on minor surgical cases. In some civil hospitals there has been an effort to put good rather than inexperienced men in the medical out-patient departments.

Army methods in acute medicine are reasonably satisfactory. The patient dies, or gets well and goes on duty. Present methods in chronic medicine are on the contrary a reproach to the Army medical administration. In this non-spectacular and intangible field of medicine, conditions exist through inertia which, if understood, would in civil life react unfavorably upon a civil hospital staff.

To prove the chaotic state of chronic medicine in the Army today, it is only necessary to point to the large numbers of cases remaining in the base hospitals two months or more, and to mention the fact that over 100,000 chronic patients are now awaiting disposition in our development battalions.

TREATMENT

Chronic patients divide into the following classes:

I. Fitting slowly but normally for full duty.
II. Disposition to be determined.
  (a) Mild obvious organic lesions.
  (b) Hyposthenics (blind lesions or congenital debility).
  (c) Mild organic *plus* mild psychiatric lesions.
  (d) Malingerers.

The treatment and disposition of these groups of patients is a fundamentally medical and *not* a primarily military problem. It is not only a medical problem, but it is a large medical problem which for its solution demands the attention of large medical men. It is not to be solved by the use of second rate men, or by the use of medical men of any calibre when in insufficient numbers, as at one camp recently visited where five surgeons were attempting to care for 4500 patients. The surgeon must be given unrestricted control of his patients, and then be called to account should he fail to produce results in the form of reasonably rapid, adequate dispositions.

For purposes of treatment, the training battalion should be to the cantonment what the convalescent department should be to the base or general hospital. In both cases there are the following functions to be discharged:

I. Fitting for full duty.
II. Evaluation and disposition of the hyposthenics or unfit.
III. Detection of malingering.

In addition, there should be in both these agencies, sub-departments wherein the theory and practice of high grade differential diagnosis can be brought to bear upon the "resistant" cases.

The following methods of attack are based upon experience:

I. Maximum personal observation, direct and indirect.
II. Adequate medical investigation.
III. Controlled diet.
IV. Physical development.
  (a) Pleasurable; games, etc.
  (b) Disciplinary; drill, and useful or purposeful chores.
V. Mental occupation (educational).
VI. Recreation.

JOHN BRYANT,
Major M. C. U. S. A.

November 15, 1918.

The results of the writer's investigations into the care being received by chronic patients in

Army hospitals, were summarized in the following Report:

REPORT TO THE SURGEON GENERAL, ON THE CONVALESCENT SITUATION: CAMPS A, B, AND C; AND GENERAL HOSPITAL D

At the four hospitals visited, there was a total of 4115 patients. Of these, 3648 had been in hospital less than two months, and further consideration of them is dismissed.

But 467 patients had been in hospital more than two months,—some of them nine, ten, and twelve months. Their combined lost time totals the very considerable period of approximately 42,484 days, or about 116 years, at an approximate cost to the government of $85,000.00 even at the low estimate of $2.00 per day maintenance. The present daily cost of these chronic patients in four hospitals is doubtless $1000.00 per day. Assuming that these hospitals are representative of conditions throughout the country, on the basis of 100 hospitals each containing 100 chronics, there would be a total of 2800 years of lost time at an expense of $2,375,000.00, and a present total daily cost of about $25,000.00 to the government.

In view of the very considerable size of the problem, it is certainly desirable, if possible, to adopt measures looking toward its reduction, provided it can be shown that such measures will not react unfavorably upon the medical care of the chronic patients under consideration.

Conditions at the different hospitals vary greatly. Thus at Camp C, only 7.3% of patients had been in hospital more than two months, whereas at Camp A, with presumably the same general class of material, there were three times this percentage of chronics, or 19.6%. At Camp B and General Hospital D, the figures were respectively 11.6% and 8.5%.

The average percentage for the four hospitals is about 11.0%, but since at Camp C the figure is only 7.3% and at General Hospital D,—which being a general hospital might be allowed a higher rate,—the incidence of chronics is only 8.5%, it is perhaps fair to say that in general the Chronics should not form much in excess of 10.0% of the total hospital population.

Turning again to Camp A, it is obvious that there is an excess of chronics of about 100.0%; in actual numbers, 83 patients. Here is a presumable waste of public funds, of about $200.00 per day, or $6000.00 per month.

Responsibility for failure to expedite the departure of chronic patients descends through the Commanding Officer to the Chiefs of Services, who must bear the immediate blame or credit for the condition of their services and the efficiency of their subordinates.

By grouping the patients under the general headings medical and surgical, and assuming, as shown by the totals for the four hospitals of 246 medical and 221 surgical cases, that the chronics should be rather evenly divided between medical and surgical, responsibility within a hospital is readily fixed.

Thus at Camp A, medical cases were in excess by 30.0%, at Camp B, surgical cases were in excess by 100.0%, at Camp C medical cases were in excess by about 100.0%, whereas at General Hospital D, the chronic patients were rather evenly divided between the medical and surgical services. These excesses are in all cases conceivably unavoidable, but this method of study at least focuses attention upon the location of the chronics by services.

In general, it is believed, on the basis of investigation and review of clinical records, that the following statements are justifiable:

1. The large number of chronics in Army hospitals is not unavoidable.
2. Their presence is in the interest neither of the patient nor the government.
3. The fundamental cause is clinical neglect.
4. The neglect is due to lack of an adequate follow-up system.
5. To be effective, such a system must include clinical and administrative details and promote publicity and competition.

Should it be objected that additional work is involved by the proposed follow-up system, it may be replied that the present chronic situation is a fact, not a theory, that its existence does not reflect credit upon the medical services, and that it continues to exist precisely for lack of application of adequate measures to prevent its existence or continuance.

Furthermore, there is no logic in a situation or system which lauds the saving of pennies from the skimmings of kitchen grease-traps, as at Camp C, while permitting the dollars to roll out the front door in the form of maintenance in hospital, to their detriment, of imperfectly diagnosed patients.

FACTORS AFFECTING RETENTION OF CHRONICS IN HOSPITAL

Failure to expedite chronics in hospital may be discussed under two headings:

A. Extra-mural.
B. Intra-mural.

A. For extra-mural factors, the hospital proper is not to blame. The fault is administrative and beyond and without the hospital control. For example, tuberculous patients are now being held in all hospitals visited, for want of instructions concerning disposition. Again, a lack of precise information exists at the hospitals as to the interrelation of Base and General Hospitals, Development Battalions and Convalescent Centres, with regard to the disposition of the more chronic patients.

As a third example may be mentioned the fact that at General Hospital D there were 24 cases which had been awaiting the return of S. C. D. papers from the department of the East for more than two weeks; three of these cases have been waiting over two months.

B. The principal factors in the retention of chronics in hospital are, however, naturally those operative within the hospital itself. The more important of these intra-mural causes of delay may be summed up as follows:

1. Inadequate medical personnel.
2. Instability of medical personnel.
3. Incomplete medical analysis of the cases.
4. Failure to follow up proven organic defects.
5. Failure to institute when possible, simultaneous treatment for coexistent defects.
6. Inadequate use of available facilities for expert advice.
7. Lack of authoritative determination of relative values of possible coexistent organic and psychic or mental defects.
8. Progress notes absent or of little value.
9. Failure of interest as a patient becomes chronic.
10. Inadequate administrative oversight of the medical work of the ward surgeons.
11. Paper work relied upon to substitute for brains.
12. Incomplete or absent diagnoses and medical neglect of chronic patients.

Consideration of the causes operative in the production of a high percentage of chronics in hospital does not indicate that a reduction in the total stay of these patients in hospital would be detrimental. On the contrary, the indication is definite that the efficiency of a hospital as a whole, and consequently of its individual services, may be judged rather accurately by the margin by which its chronics decrease below 10% of its total population.

Conversely, with an increasing percentage of chronics above the standard of 10%, the indication becomes

increasingly clear that there may be actual neglect of the chronic and therefore more difficult patients.

RECOMMENDATIONS FOR IMPROVEMENT OF THE CONVALESCENT SITUATION

1. The ratio of personnel to patients should not fall below 1:30.

It is inevitable that whenever ward surgeons are caring for 60 to 80 patients, the chronics will be neglected.

2. The medical personnel should not be allowed, when avoidable, to change stations more often than once every two months.

Rapid changes are synonymous with decreased efficiency or neglect, on account of a lack of feeling of responsibility.

3. Elimination of medical personnel with low ratings.

The chronic problem will become increasingly more important with the return to civil life of the more easily recovering acute cases.

4. Cases receiving other disposition than full duty should be reviewed before leaving hospital, to guard against the passing on of uncompleted medical problems to other destinations. Transfer to another organization is not in itself sufficient to promote cure.

5. Dietary supervision for chronics, in the direction of decreased total intake and restriction of the usual high meat and other protein content of the diet, as practiced with satisfaction at the Walter Reed General Hospital.

6. The appointment, as consultants to geographic or other groups of hospitals, of mature and highly trained men who will be responsible for the absence of neglect of chronic cases in hospital. These men should be of the mental grade of Lieutenant-Colonel.

7. Initiation of an administrative follow-up planned to promote publicity and stimulate competition in the skillful care of chronics.

8. Clinical service reorganization.

9. Service appointments, as associate chief or convalescent officer, of the ablest men available on given services, these officers to be immediately responsible for the care of the chronics.

10. Intensive use, for purposes of physical improvement and mental education, of all facilities available to the convalescent service in a given hospital.

DETAILED CONSIDERATION OF RECOMMENDATIONS NOS. 7, 8, 9, AND 10

7. Administrative follow-up.

A. Intra-mural, all to originate in record office.

(a) Index cards in duplicate, one to desk file, chief of service, and one to file for commanding officer; cards in three colors.

1. White on admission, all patients.
2. Blue, 30 days, all patients.
3. Pink, 60 days, all patients.

Cards to have indicators, cards one and two showing time in weeks and card three showing months in hospital.

A clerk to be detailed to this work, to keep files up to date, the same clerk to prepare the weekly schedules for the hospital.

Weekly progress notes to be made on reverse side of service cards in presence of chief of service or convalescent officer, by ward surgeons in immediate charge of cases.

File of commanding officer to show all patients in hospital, alphabetically, with time shown by colors of cards and indicators.

(b) Blue 30 day notification cards to be sent to wards, to remain permanently attached in front of the white sheets of clinical histories.

Weekly notation of length of stay in hospital to be made on these cards and signed by ward surgeons.

(c) Pink 60 day cards, same use as previous blue card, to be attached when necessary in front of blue cards, on history sheets.

(d) Preparation and distribution weekly by record office of a schedule of chronics in hospital, indicating their location by services and their duration of stay by weeks and months; five copies on pink paper to

1. Chief, medical service.
2. Chief, surgical service.
3. Commanding officer.
4. Record office for file.
5. Hospital bulletin board (to remain posted one week).
6. Twice monthly a copy forwarded to S. G. O.

B. Extra-mural.

A monthly consolidated schedule showing chronics in all hospitals, to be compiled by the S. G. O., printed on pink paper and distributed to all hospitals. This schedule to remain posted on bulletin boards for one month, in the same manner as the present sick reports circulated from the S. G. O.

Opportunity is thus provided for hospitals to rate comparatively high or low with regard to their percentage of chronics in hospital.

C. The use of distinctive colors is a well-recognized visual aid to rapid classification. In proceeding from white to blue and pink according to time in hospital, some attempt is made to offset the present manner in which a patient becomes progressively neglected according to the duration of his stay in hospital.

8. Clinical service organization.

(a) Acute wards (1 to 4 weeks).
(b) Sub-acute, or intermediate wards (4 to 8 weeks).
(c) Convalescent (8 weeks and over).

To prevent clinical stagnation, an arbitrary time should be established, at which, as between 3-4 weeks and again between 7-8 weeks, a given patient should be transferred from (a) to (b) and to (c), to the care of ward surgeons especially chosen for their progressively increasing ability as differential diagnosticians.

With each change of station, the Chief should insist upon seeing evidence of a complete diagnostic review of the case by the new ward surgeon. A medical routine successfully employed for this purpose at the W. R. G. H. is attached.

The ward surgeon originally receiving a case in the acute stage must inevitably lose interest in this case by the end of 3-4 weeks, when the older cases must to some extent be crowded aside by the routine new admission of acute cases. It is therefore logical to divide recovery as above indicated into three stages, acute, intermediate and convalescent, separating these periods arbitrarily at 4 and 8 weeks primarily on a time basis, segregating only secondarily by disease and putting thoroughly competent ward surgeons in charge of each department.

Such a progressive change of location would on the one hand inevitably do much to relieve the monotony of the patient by providing new environment. On the other hand, the continually new-coming patients would do much to stimulate and maintain interest on the part of the ward surgeons who would so-to-

speak be specializing in these differing and equally important even if commonly neglected stages of recovery and convalescence.

9. Convalescent appointments.

The importance of the convalescent problem demands definite recognition, by the appointment of the ablest available man on a given service, as associate chief or officer in charge of convalescents. This officer must be mature, and of the rank of Major or certainly not less than Captain, in view of the difficulty and responsibility of his task.

Should objection be raised, it can easily be shown, wholly aside from moral or humanitarian considerations, that it is a sound financial procedure to appoint both a surgical and a medical major, at a total daily expense of not much in excess of $20.00, in order to eliminate a problem costing today at Camp A, for example, a probably unnecessary $200.00 per day. Even at Camp C, with its low incidence of chronics, there would be a financial gain if at an expense of $20.00 per day the present number of chronics (65) could be reduced by one-half.

Since the time of the Chief of Service is fully occupied by administrative detail and the care of the acute cases, this associate chief should be personally responsible for the clinical records of his chronic cases, with regard to their value and completeness.

Probably 80% of all acute cases will leave hospital without effort upon the part of the staff. Consequently it is upon the remaining 20% which do not leave as per schedule, that effort must be concentrated. These cases will provide sufficiently serious occupation for the convalescent officer, and in proportion to his personal skill as a differential diagnostician, these difficult cases will begin to leave hospital.

10. Convalescent service routine.

Assuming a reorganization of the medical personnel for more efficient convalescent work, there remains to be mentioned the importance, which will increase with the progress of convalescence, of adequate and continuous mental and bodily occupation for the continuing progress of the patient.

A schedule of muscular work, and of mental occupation, should be arranged, which, aside from the time actually devoted to medical treatment, should leave the patient a minimum of free time during normal working hours, but which on the other hand may leave him completely free between supper and bed time. Such a schedule, attached, was used with success at the Walter Reed General Hospital.

Out of this daily schedule, at least two hours should be set aside for educational procedures such as grammar school or trade studies, grouped under the heading of mental occupation.

Given two patients both sluggish or stationary medically, the one unoccupied will retrogress. But the occupied patient will at least progress mentally through having education injected as a by-product of his active rather than passive hospital life, to his future mental and present psychic satisfaction.

From previous personal experience with convalescents, it cannot be too emphatically stated that the additional effort involved on the part of the ward surgeon in the carrying out of the above procedures is more than compensated for by the visible progress and lasting gratitude of the happily occupied patients.

*Exhibits attached as follows:

A. Dietary regime for all Convalescent patients, W. R. G. H.
B. Service schedule of patients in hospital (formerly in use W. R. G. H.).
C. Consolidated hospital schedule (S. G. O. type) (formerly in use W. R. G. H.).
D. Pink 60 day card for clinical records (form 52, G. H. D.).
E. Service index cards (formerly in use W. R. G. H. (1), and (2) form 106 G. H. D.).
F. Diagnostic review routine (formerly in use W. R. G. H.).
G. Convalescent Service daily routine (formerly in use W. R. G. H.).

Attention is drawn to the fact that none of the above exhibits are theoretical, all having been in actual use.

*Exhibits omitted to save space.

JOHN BRYANT,
Major, M. C. U. S. A.

December 4, 1918.

In December, 1918, the attitude of the Division of Internal Medicine, S. G. O. was that, although it would be exceedingly desirable to introduce more active hospital Convalescent work into the Army, there were not available a sufficient number of adequately trained men, capable of conducting such hospital Convalescent Departments as it was proposed to establish, to provide even one such trained man for each general hospital in this country. The need of such work was freely admitted, but for want of an adequately trained personnel its fulfillment was considered impossible.

IV. CONVALESCENT WORK WITH THE DIVISION OF PHYSICAL RECONSTRUCTION, SURGEON-GENERAL'S OFFICE

Early in January, 1919, the writer was transferred from the Walter Reed General Hospital to the Surgeon-General's Office, as Field Consultant to the Division of Physical Reconstruction. During the remainder of his service in the Army, until his discharge on May twenty-sixth, 1919, he was practically the only officer attached to the Division of Physical Reconstruction, S. G. O., who had had actual personal experience in conducting Convalescent Work in a base or general hospital. The paucity of such actual clinical Army experience on the part of some of those controlling the policies of the Division of Physical Reconstruction, may have had something to do with a rapid series of somewhat conflicting orders or circular letters emanating at one stage of the work, from the office of this Division of the S. G. O.

In the field, there had been complaint of difficulty in understanding clearly the flood of directions issued by the Division of Physical Reconstruction. There was at first a distinct hostility toward active coöperation with the Department of Physical Reconstruction. The hostility of the Commanding Officers in most cases depended upon lack of information; they were in general very ready to aid in carrying out policies which looked helpful, once they were clearly presented. The ward surgeons, on the other hand, were often definitely resistant to doing anything favoring the Department of Physical Reconstruction, on the basis that the War was over and that in consequence they were not proposing to do additional work beyond the minimum required, for any reason whatsoever.

The first work necessary before the treatment of patients could be adequately discussed, was, therefore, enlistment of active coöperation on the part of the hospital staffs. In visiting one hospital after another during the Spring of 1919, and in returning over the same route (after being definitely assigned to the hospitals in the Northeastern section of the country), it was interesting to note the change in point of view of the hospital staffs. At first resistant or indifferent, there was gradually forced upon these staffs, by what they actually saw and experienced, a realization of the importance and value to them of an adequate utilization of the policies recommended and the facilities provided by the Division of Physical Reconstruction, even with their Staff problems viewed purely from the utilitarian point of view of increased ease of conduct of their hospitals.

The general policy upon which the Division of Physical Reconstruction was proceeding, may be indicated by the following Extract:

POLICY APPROVED BY THE SECRETARY OF WAR FOR THE PHYSICAL RECONSTRUCTION OF DISABLED SOLDIERS

Extract

(b) Physical Reconstruction may be defined as the most complete form of medical and surgical treatment carried to the point where maximum functional restoration, mental and physical, has been secured. To secure this result the use of work, mental and manual, will be required during the convalescent period. This therapeutic measure, in addition to aiding greatly in shortening the convalescent period, retains or arouses mental activities, preventing 'hospitalization,' and enables the patient to be returned to service or civil life with the full realization that he can work in his handicapped state, and with habits of industry much encouraged if not firmly formed.

The above extract is from a letter from Lt. Col. C. A. Wood, M. C., to the Chief of the Division of Physical Reconstruction, dated June 29, 1918, the subject of which was:

"Report on the activities of the Division of Special Hospitals and Reconstruction, now the Division of Physical Reconstruction, August 27, 1917, to June 30, 1918."

The plan of organization upon which the Department of Physical Reconstruction was proceeding, may be indicated by the following Extract from General Orders No. 55, September 19, 1918, W. R. G. H.

"The following Departments are tentatively organized as adjuncts to the above services." [The Medical Services had been organized under three Chiefs of Services; a Chief of the Surgical Service, a Chief of the Medical Service, and a Chief of the Laboratory Service, each with appropriate sub-sections.]

"I. Convalescent Department.
II. Department of Occupational Therapy.
III. Department of Physio-Therapy.

"The Head of each Department will be designated as 'The Director of the ——— Department,' and will operate in co-ordination with the Chiefs of Services. In administrative matters, Directors of Departments will report directly to the Commanding Officer of the hospital.

BY ORDER OF COLONEL SCHREINER.
H. K. Richardson,
Captain, M. C.,
Adjutant."

The above Extract is quoted to indicate that even at this early date it was felt to be essential that Occupational Therapy and Physiotherapy should be rated as independent Departments, responsible not to the Chiefs of other Services, but directly to the Commanding Officers.

In practice, there was little difficulty in recognizing the independent status of Occupational Therapy, as it was for the most part not a strictly medical activity. The status of Physiotherapy was however much less clear, and at many hospitals it was at first conducted under the auspices of the Orthopedic Department. This proved to be undesirable, and was the cause of almost constant friction until the Departments of Physio-therapy in the various hospitals were placed under individual responsibility.

The opinion of the Division of Physical Reconstruction concerning this matter is indicated in the first two paragraphs of a letter from the Surgeon-General of the Army to the Commanding Officers of all General and Base Hospitals, under date of December twenty-seventh, 1918, as follows:

"1. The Director of Physio-therapy is assigned to and works under the direction of the Commanding Officer of the Base or General Hospital.
2. The Department of Physio-therapy is for the use of all departments in the hospital and is not attached to, nor is it under the direction of any one department."

As late as May, 1919, it was necessary for the writer to unravel the status of Physio-therapy at one Base Hospital, where the Orthopedist who had assumed control of the Physio-therapeutic activities at the Hospital, seemed very reluctant to give up his control. This specific instance is referred to on account of the result obtained by establishing Physio-therapy on an independent basis. This result was an increase of nearly 200% in the utilization of the Department of Physio-therapy by the other Hospital services, within a period of two weeks. There was also an accompaniment of greatly improved results, due to a better quality of physio-therapeutic work upon the patients.

In general, the Division of Physical Reconstruction was concerned with patients: (a), in hospital proper; and (b), in Development Battalions or Convalescent Camps. The present review is not concerned with work in the Convalescent Camps. In the Hospitals, so-called Reconstruction Work was divided into two Sections: Occupational Therapy (including Vocational and Curative Therapy), and Physiotherapy.

The degree of personal control which it was possible to exert in the carrying out of Reconstruction policies in the Northeastern hospital area during the spring of 1919, may be suggested by the following incident. In the face of strenuous political opposition, one hospital was, as the result of a single inspection and within twenty-four hours of the filing of an adverse report by the writer, promptly and permanently closed by direct order of the Secretary of War.

OCCUPATIONAL THERAPY

In the course of the progress and growth of the Occupational Section, it was divided into the five sub-sections of General, Handcraft, Academic, Technical and Recreational Work. At the individual hospitals, these sub-sections were all under control of the Directors of Occupational Therapy. An idea of the comparative growth and importance of the sections of Occupational Therapy may be obtained from a consideration of the tables which follow in the Statistical Review. These tables are based upon the official monthly Educational Service Reports of the Department of Physical Reconstruction.

The peak load of patients being returned from France was reached in March, 1919, with a maximum of 74,946, after which time there was a steady falling off in the total Army hospital population.

The maximum of total enrollments in Occupational Therapy, was recorded two months later, in May, 1919. The tables indicate that at this time, out of a total Hospital population of 62,964 patients, 30,096 or about 48% were engaged in occupational work. The total enrollments in May reached the figure 56,850, by which is indicated that each patient engaged in Occupational Therapy work was enrolled in an average of 1.8 subjects. Some of these patients were enrolled in only one subject. On the other hand, many patients were enrolled in as high as five and six different subjects. The total enrollments (56,850) for May, were divided between the work in the wards, and the work at the Shop and School as follows: Ward, 25,602; Shop and School, 31,248. Ward enrollments were divided into Crafts (20,641) and Academic (4961). Shop and School enrollments were divided into General (8056), Technical (15,043), and Recreational (8149).

The actual enrollments reflect in large measure the attitude of the authorities toward the relative merits of the various branches of Occupational work. During the early Spring of 1919, attention had been focused upon the importance of Handcraft work in the wards. This was also true of the Technical or Shop work, for the equipment in which, very large amounts of money were then being expended by the Government.

In connection with the total technical enrollments, it should be noted that many patients considered enrollment in Shop courses an excellent method of avoiding work of all kinds. This was particularly true of automobile work, enrollments in which in summer, were more often than not utilized as an excuse for smoking out of doors.

In contrast to the enrollments in Handcraft and Technical work, in which enrollments rose rapidly to a high point and fell almost equally rapidly, one may note the curves of the total enrollments in Recreational and Academic work. The Recreational work was always in the form of prescribed exercise.

Academic work at all times interested the small percentage of patients anxious to improve their status in life. The lasting and fundamental value of Academic work was however, not sufficiently widely recognized until February 1919. Occupational work in the wards was even then being devoted too exclusively to the more showy and more easily appreciated Handcraft work.

One of the special obectives of the writer, therefore, and for reasons indicated in the previously published portion of this review (Boston Med. and Surg. Jour., May 14, 1925), was to focus attention constantly upon the value of Academic work. It is believed that the steady rise in the number of enrollments in Academic work between January and June 1919, was perhaps to no inconsiderable degree a reflection of the effort expended by the writer in thus focusing the attention of the Division of Physical Reconstruction upon the permanent value of such Academic work.

Incidentally, the Chief Academic Aide in Washington once remarked that it was unnecessary for the writer to give her the itinerary of his field trips; it was self evident, she said, from the stream of requests for Academic Aides which always arrived in Washington, from the hospitals he had most recently visited.

One instance of the writer's practical interest in the promotion of this Ward Academic work at a Base Hospital, may be mentioned. At this hospital, there were large numbers of slowly recovering osteomyelitis cases, which were benefiting greatly by the resources of Physiotherapy. The Occupational Department there, was deploring the fact that it was impossible to get hold of the men just able to leave the wards on crutches. At the same time, it was neglecting the patients unable to leave the wards, or providing them only with elementary Handcraft work. At the suggestion of the writer, special attention thereafter was devoted not to the ambulant patients, but to those physically unable to leave the wards. Furthermore, special attention was devoted to the possibility of interesting these ward patients in strictly Academic work. The result was that within a few weeks, over 400 ward patients in this hospital had enrolled in worthwhile Academic work.

Of especial significance, is the fact that when offered equal opportunity, not one of these 400 patients elected Handcraft work. The choice had been for Handcraft versus idleness. The choice was unanimously for worth-while Academic work of lasting value, as against Handcraft work.

At the time, this total of 400 student-patients was a larger actual total Academic enrollment than had been reported for any other Army hospital in the country. Yet, at this Base Hospital there were then in all scarcely a thousand patients, as against for example, a total of approximately 3000 patients at one of the large General Hospitals.

One valuable and constructive feature of the purely Academic work, was the amount of time devoted to so-called Americanization courses. In every hospital, a varying proportion of the patients were being qualified for final citizenship papers as a direct result of the work being done by the Academic sections of the Occupational Department. In most hospitals, the standard in this work was kept very high, and patients were refused their papers until they had acquired a reasonable degree of familiarity with the English language, the Constitution, and the other subjects required for the completion of the Americanization courses. The withholding of the final citizenship papers seemed to act as a powerful stimulus in persuading many of these otherwise somewhat indifferent student-patients, to complete the prescribed work of the Americanization courses in a satisfactory manner before leaving hospital.

In almost every hospital visited, there were a few patients who, through the opportunities offered by the Occupational Department for the cultivation of inherent artistic ability, and well within the length of stay necessitated by the actual medical treatment, were raised suddenly from a laboring to an artisan status. Such former manual workers were enabled, by effective utilization of the facilities provided, to accept remunerative positions for poster work or even higher forms of creative art work, immediately upon discharge from the Army.

The question of the degree to which patients with tuberculosis can benefit from Occupational Therapy, received attention at the various hospitals for the tubercular patients. Opposing points of view upon this matter were well illustrated by the work being conducted at two special hospitals. At Hospital A, there was an excellent medical staff. Occupational work here was begun early, at a time when the focus of the Department of Physical Reconstruction was largely upon Handcraft work. The result was that when this hospital was first visited by the writer, many other constructive forms of Occupational Therapy were being neglected in favor of Handcraft work.

This state of affairs was in marked contrast to the very practical line of Occupational work being conducted at Hospital B. At this latter hospital, the medical staff was for a time unfortunately rather weak. The Occupational Director was on the other hand very able and progressive. He found it necessary, in order to protect himself, to institute a considerable amount of medical supervisory work which was recorded by his own staff. This anomaly was in the course of time corrected, and thereafter the course of development of the Occupational Department at Hospital B was even more rapid than it had previously been. The Director here was intensely interested in real education, and the result was obvious in a walk through the wards. Most of the bed patients in this hospital were doing constructive work, either in languages or mathematics. Consequently, the visitor received from the patients an unusual and vivid impression of contented activity. The contrast between the character of the Occupational work in progress at Hospital B, and that being done at Hospital A, was brought to the attention of the authorities at Hospital A; the obvious result was that there soon developed a satisfactory increase in the amount of worthwhile educational work being conducted at Hospital A.

A patient seen in the Department of Physiotherapy at Camp B well illustrates the degree to which absorption in constructive mental work can to advantage be carried, in the care of a convalescent patient; and this, not only without interfering with, but with actual benefit to the more purely medical activities. The patient in question was an Italian of about twenty-five years of age; he had a long and serious flesh wound of the right arm which had resulted in a considerable amount of contracture and loss of motion at the elbow. This patient, when seen, was lying on a table in the Physiotherapy room, reclining partly on his left side. His right hand and arm were behind him, and his wound was being massaged by an Aide. The patient was paying not the slightest attention to his right arm or to the conceivably painful manipulations of his elbow. He was devoting all his attention to reading from a book held in his left hand. This book proved to be an elementary English reader. It would be difficult to deny that this patient was, when seen, in a more favorable mental state for physical recovery, than if he had been mentally unoccupied otherwise than in worrying about his wound.

PHYSIOTHERAPY

The great value of Physiotherapy in the treatment of many types of chronic cases, both medical and surgical, was for the most part unappreciated in this country until it had been clearly demonstrated by results in the various Army hospitals. After these results began to be recognized, there was a rapidly increasing demand for better utilization of the facilities

provided by the Section of Physiotherapy. There followed not only improvement in the condition of the patients, but a speeding up in their departure from hospital. This was especially true of the chronic bone and nerve cases, the cases with contracture of muscles, and the cases with that relative fixation of joints which so often resulted from a too prolonged use of plaster casts.

In fact, when, because of shortage of highly trained personnel, certain hospitals were selected to receive the first of the neuro-surgical and fracture cases, the Chief of this Division, under the advice of the Surgeon-General, made the determining factor in such selection, the extent, strength, and equipment of the Department of Physiotherapy at the hospital under consideration. Evidence accumulated to indicate that pre- and post-operative physiotherapeutic treatment not infrequently determined the attainment of maximum functional improvement and anatomic cure.

A Department of Physiotherapy was eventually established as one of the essential departments, in each of the 45 hospitals designated to function in Physical Reconstruction. In these 45 hospitals, up to and including October 6, 1919, an impressive series of 63,693 cases had been treated by physical measures. These 63,693 cases had received a total of 2,481,615 treatments.

The results were not infrequently surprising. Not only was the duration of disability markedly shortened (a factor of great economic value in civil industrial cases), but many supposedly hopeless cases recovered maximum function; these were discharged able to make their own way in the world, and under only minimum handicap.

Accumulating evidence of this sort became so convincing, that Dr. Frank Billings, former Chief of the Division of Physical Reconstruction, stated at the annual meeting of the American Medical Association at Atlantic City in 1920, that the results of Physiotherapy had been such, that in his opinion a well equipped Department of Physiotherapy was just as essential to a civil hospital, as its operating room.

In practice, the treatments given in a Department of Physiotherapy were grouped under the following five classes:

1. Hydrotherapy.
2. Electrotherapy.
3. Massage.
4. Mechano-therapeutic.
5. Medical or re-educational exercise section.

No mention of the work of the Section of Physiotherapy could be in any degree adequate without reference to the remarkably and universally high quality of the Reconstruction Aides to whom fell the great proportion of the real work of the Section of Physiotherapy.

The qualifications for appointment of these Aides were exceedingly rigid. Consequently, a very high standard was established, the majority of the Aides being either graduates of normal schools of physical education, or college graduates majoring in physical education. In addition to this, all had had special intensive training varying from six weeks to three months, in certain colleges and schools. A further specialized intensive course was given by Harvard University to eighty-five of the best equipped Aides. Besides these requirements an Aide was required to submit:

1. Satisfactory proof as to her moral character and standing in the community.
2. Successful passing of a physical examination made by some member of the Medical Corps.
3. The passing of a clinical and professional examination before a judge selected by the Medical Corps or a competent civilian practitioner.
4. Satisfying an interviewer (generally a woman selected for special qualifications in this line) as to personality, general fitness for the work, general appearance, character of voice, etc.
5. Three recommendations or three references.
6. An unmounted photograph.
7. An application blank in which was stated her educational and professional qualifications, etc.

After considering all of the above, a final selection was made.

The success which these Aides attained, both from a professional standpoint and from the standpoint of personality, justified every care taken in their selection. In all, eight hundred such Aides were in the service.

It was intended that no reconstruction Aide in Physiotherapy should average more than fifteen cases daily; but whenever emergencies developed, without exception these Aides cheerfully carried even double this amount of work, and carried it with a degree of cheerfulness which visibly uplifted their patients.

SOCIAL SERVICE WORK

What might be called the Social Service work in the Army, was for the most part conducted by the Red Cross and allied associations. There is no doubt that all this work did much to promote the peace of mind of the patients, thereby hastening in proportion to its successful application, the discharge from hospital of the patients who had benefited by such service.

COÖRDINATION AND LIAISON WORK

By the summer of 1919, it had become obvious to the Commanding Officers of the various hospitals, that there was often an insufficient coördination between the activities of the Department of Physical Reconstruction, and those of the more purely medical services in the hospitals. To avoid the occurrence of such breaks in continuity between the functioning of the medical services and the functioning of the more or less independent Departments of Occupational Therapy and Physiotherapy, progressive Commanding Officers appointed liaison officers between the Reconstruction and Medi-

cal services. Thus, the Commanding Officer of one large General Hospital thought this liaison position sufficiently important, so that he detailed to it a regular officer of the grade of lieutenant-colonel, one who had himself previously acted as the very efficient Commanding Officer of a Base Hospital.

(To be concluded)

GAS BACILLUS INFECTION WITH PERFORATED GASTRIC ULCER

BY NEIL A. DAYTON, M.D., WRENTHAM, MASSACHUSETTS

Assistant Superintendent, Wrentham State School

A WHITE male of eighteen years was admitted April 7, 1908. The history and admission examinations, including the Wassermann reaction, were negative. The patient had a number of illnesses and operations beginning with lobar pneumonia in January, 1918. There followed right herniotomy in May, 1921, osteomyelitis of the left humerus with operation in February, 1923, and two attacks of erysipelas in January and April, 1924. An ulcer appeared above the right ankle in November, 1924, and alternately healed and recurred. The last psychological examination, in 1924, gave the patient a mental age of six years and two months with an intelligence quotient of .39. The patient was of dull inactive type with little reaction to environment or stimuli of any order. Previous to the hour of present illness he had made no complaint, his appetite was unimpaired and his weight and general condition showed no perceptible change.

At 4 P. M. on April 8, 1925, the patient said that he did not feel well and was placed in bed, the axillary temperature being 97.6° F. At 6 P. M. he became nauseated and vomited. The patient gave no expression of pain. At 8 P. M., dyspnoea was observed. At that time the temperature was normal, the pulse irregular and 100 per minute, the respirations quick, short and accelerated to 36 per minute. The skin of the head and trunk was of a dirty white color with no involvement of the extremities. The superficial tissues of the abdomen were of a doughy consistency while deep palpation revealed rigidity of the muscles. Even at this point the patient did not seem to be experiencing great pain, indicating his discomfort by simply pointing to his abdomen. At 8:50 P. M., a slight puffiness of the neck, anteriorly, made its appearance. This condition spread rapidly to the supra and infraclavicular spaces and lateral aspects of the neck, involving the ears. The skin of these areas became tense and drum-like as the tissues were ballooned out. Synchronously the superficial structures of the abdomen began to puff. The dirty gray color of the skin gave way to a light brownish tinge. At 9:15 P. M. the patient took a sudden deep inspiration and died. Rapid involvement of the entire body then took place, tremendous gaseous distension of the skin of the face, scalp, arms, chest, penis, scrotum and thighs occurring within an hour.

NECROPSY

Dr. M. Fulstow, Pathologist of the Department of Mental Diseases, gives the anatomical diagnosis as follows: Ruptured gastric ulcer with escape of contents of stomach to peritoneal cavity; Infection of blood stream with Bacillus Aerogenes Capsulatus; Congestion of lungs; Chronic ulcer of leg; Old healed pleuritis; Chronic fibrous mitral endocarditis; Operative scars (old); Chronic leptomeningitis. The entire body is much swollen and on deep pressure crepitus is felt. Penis is distended by gas to 4.5 cm. The scrotum is also distended to the size of 13x11x11 cm. A trocar introduced and match applied to the end reveals the presence of gas which burns with a faint blue flame. The tissues of the abdominal wall cut with the consistence of lungs and are full of gas bubbles. The peritoneal cavity contains in all its crevices green stomach contents, mostly undigested vegetables, and there is a large amount of this material in the pelvis. The stomach is large and bag-like, the wall is thickened and many gas bubbles can be felt under the mucosa. Near the cardiac end of the stomach the mucosa is hemorrhagic. About 5 cm. from the oesophagus on the lesser curvature is a large hole with indurated edges measuring, at the time of necropsy, 6x4 cm. Six cm. from this is a gastric ulcer which is not perforated, measuring 2x1 cm. The liver is not involved. Adrenals are small and soft and on section show a narrow yellow cortex with a broad, very dark brown line.

A culture of the heart blood gave no growth thought due to insufficient blood being used.

DISCUSSION

The leg ulcer can be discounted as the portal of entry as there was no local evidence of gas bacillus infection of the surrounding tissues. The presence of gas bubbles in the stomach wall suggests that here we have the seat of primary infection, particularly as this condition was not observed in the intestinal mucosa. The hyper-acidity and hemorrhage, presumably accompanying those chronic ulcers, provide other factors. These consisting of the tremendous acceleration accorded growth of anaerobes by the presence of acid[1] and the preference of the gas bacilli for clotted blood as

a medium for growth[2]. The paradox of symptomless gastric ulcers is accounted for by the fact that the patient was an imbecile with markedly dulled sensory apparatus. He did not express symptoms for the reason that he did not feel them. We saw only the terminus of the process, consisting of the ingestion of a virulent strain of one of the gas bacilli; growth either in blood provided by the ulcers accelerated by increased acidity, or in the areas of lowered resistance surrounding the ulcers; an absorption of toxins inhibiting the adrenals[3]; the additional shock of perforation and peritonitis; a final invasion of the blood stream; development of the typical symptoms of systemic gas bacillus infection, aptly described by Wright as resembling "the progress of an avalanche."

COMMENT

Gas bacillus infection, mainly from B. Welchii, has been observed in connection with several diseases of the gastrointestinal tract. From the cases reported we would judge that the organisms do not cause serious disturbance unless they are able to gain access to organs already the seat of tissue lesions of other origin. Once established they may produce symptoms typical of the organ involved. Thus the process in the gall-bladder may simulate gall-stone colic[4] or, in addition to these symptoms, may be concerned in the actual production of gall-stones[5]. Through the gall-bladder and liver the organisms may find their way into the blood stream and give a positive blood culture without symptoms of gas production[6]. This marked antithesis to the usual results of blood invasion serve as a reminder that the bulk of strains of B. Welchii are only slightly virulent[7] and that some are non-pathogenic even in large doses[8]. Occasionally the operative procedures on the gall-bladder open up new passage-ways for infection[9] and offer tissues with reduced defenses to serve as a medium for growth of the bacilli. Liver carcinoma may render possible the establishment of an infectious process and enable the toxins and organisms to reach the blood stream[5] or liver abscess may harbor the anaerobes[9]. Invasion of the blood by intestinal bacteria is rare[10] but under conditions where lesions of the bowel exist they may enter from this source[11]. This phenomenon has occurred with gastric ulcer[12] and typhoid ulcerations[13] both resulting in metastases with gas production and profound toxemia. The presence of large numbers of B. Welchii in the intestines of pernicious anaemia patients gives the suggestion that the production of toxin, even in small amounts, may not be unimportant[14], particularly as the hemolytic power of the toxin has been demonstrated experimentally[15] and in necropsies[16], [17]. The gas bacilli are not uncommon in appendicitis as judged by studies of pathological material. Their incidence varies from twenty per cent. in acute cases[18] to ninety per cent. in entire groups[19], the B. Welchii occurring in greater frequency in cases of gangrenous appendix than in ordinary inflammations[20].

REFERENCES

1 Wright, A. E.: Conditions Which Govern the Growth of the Bacillus of "Gas Gangrene" in Artificial Culture Media. Lancet, I:I, Jan. 6, 1917.
2 Goodman, C.: Gas Gangrene. Ann. of Surg., 79:806-812, June, 1924.
3 Cramer, W., and Gye, W. E.: Anaerobic Infections. Jour. State Med., 30:254-262, June, 1922.
4 Hallé, M., and Marquézy, M.: Gas Gangrene in Gall-bladder. Bull. et mém. Soc. méd. d. hôp. de Par., 46:49-57, Jan. 13, 1922; ab. J. A. M. A., 78:848, Mar. 18, 1922.
5 Greeley, H.: Idiopathic Bacillus Aerogenes Capsulatus Infection. Bull. Johns Hopkins Hosp., 29:231-234, Oct., 1918.
6 Baugher, A. H.: The Bacillus Aerogenes Capsulatus in Blood Cultures with Recoveries. J. A. M. A., 62: 1153-1155, Apr. 11, 1914.
7 Henry, H., and Lacey, M.: Anaerobes Responsible for Gas Gangrene in Man. Jour. Path. and Bacteriol., 23:281-288, June, 1920.
8 Reddish, G. F., and Rettger, L. F.: A Morphological, Cultural and Biochemical Study of Representative Spore-forming Anaerobic Bacteria. Jour. Bacteriol., 9:13-57, Jan., 1924.
9 Snyder, C. C.: Abscess of Liver Due to Bacillus Aerogenes Capsulatus. Surg., Gynec. and Obst., 38:605-609, May, 1924.
10 Williamson, C. S., and Brown, R. O.: Permeability of Intestinal Mucosa to Certain Types of Bacteria, Determined by Cultures from Thoracic Duct. Am. Jour. Med. Sci., 165:480-486, Apr., 1923.
11 Moody, W. B., and Irons, E. E.: Invasion of Body by Bacteria from Intestinal Tract. Jour. Infect. Dis., 32:226-231, Mar., 1923.
12 Learmonth, J. R.: A Case of Metastatic Gas Gangrene in Civil Practise. Lancet, 2:648-649, Sept. 27, 1924.
13 Weinberg and Françon: A Case of Gas Gangrene in Typhoid. Bull. et mém. Soc. méd. d. hôp. de Par., 43:1084-1088, Dec. 12, 1919; ab. J. A. M. A., 74:634, Feb. 28, 1920.
14 Kahn, M. C.: Anaerobic Spore-bearing Bacteria of the Human Intestines in Health and in Certain Diseases. Jour. Infect. Dis., 35:423-475, Nov., 1924.
15 Bull, C. G., and Pritchett, I. W.: Toxin and Antitoxin of, and Protective Inoculation Against Bacillus Welchii. Jour. Exper. Med., 26:119-138, July, 1917.
16 Inglis, K.: Gas Gangrene in Military and Civil Practise. Med. Jour. Australia, 1:7-9, Jan. 6, 1923.
17 Gemmill, W. F.: Emphysematous Gangrene, with Report of Cases. Surg., Gynec. and Obst., 38:650-653, May, 1924.
18 Dudgeon, L. S., and Mitchiner, P. H.: Bacteriological and Pathological Examination of Vermiform Appendix in First 30 Hours of Acute Appendicitis, etc. Brit. Jour. Surg., II:676-689, Apr., 1924.
19 Jennings, J. E.: Gangrenous Appendicitis: Role of Bacillus Welchii in Gangrenous Appendicitis and Use of Antitoxin of Bull and Pritchett in Its Treatment. New York Med. Jour., 117:682-685, June 6, 1923.
20 Pilcher, J. T.: Gas Gangrene with Special Reference to Its Treatment. Ann. of Surg., 81:198-212, Jan., 1925.

MEDICAL PROGRESS

PROGRESS IN PULMONARY TUBERCULOSIS

BY JOHN B. HAWES, 2ND, M.D., BOSTON

Diagnosis: There is no doubt but that in Massachusetts the diagnosis of tuberculosis in its early and favorable stages is steadily increasing and that this is an important factor in our diminishing death rate from this disease. There still remain, however, two large groups of physicians one of which is unwilling to make a diagnosis until all the cardinal signs and symptoms are present while the second group consisting largely of the younger men is apt to

make a diagnosis and to institute treatment on insufficient evidence and without looking for other possible causes of the symptoms.

Horak, O. (*Wien. Arch. f. inn. Med.*, 8:353, July 10, 1924) describes cases of right apical disease apparently due to tuberculosis with shortness of breath and hemorrhages which were really due to congestion following stasis in the right heart.

Pentecost, R. S. (*Canad. M. A. J.*, 14:591, July, 1924) calls attention to disease of the upper respiratory tract which may produce a group of symptoms simulating to a marked degree pulmonary tuberculosis.

Bernard, L. (*Arch. internat. de laryngol.*, 3:766, July, 1924) refers to the same subject but wisely adds that patients with pulmonary tuberculosis are often greatly benefitted by careful attention and treatment of lesions of the upper respiratory tract.

Blakeman, F. W. (*Canad. M. A. J.*, 14:606, July, 1924) belives that pulmonary syphilis is more frequent than heretofore recognised and that in the presence of syphilitic stigmata any obscure lung disease should be considered luetic until proven otherwise. His views on this subject may well be considered somewhat radical, however.

Warfield, L. M. (*Rev. of Tub.*, xi-2, 112, 122, 130 pp., April, 1925) discusses what he calls occult tuberculosis and how it may develop into clinical disease. He describes a train of symptoms found most often in women but frequently too in tired out and overworked men which is apt to be called neurasthenia or debility; really careful study will show however that a concealed tuberculous lesion is the cause of symptoms. In certain of these cases gastro-intestinal symptoms predominate. These are apt to be seen by general practitioners and gastro-enterologists rather than tuberculosis specialists. He finds cod liver oil a specific drug in these cases.

Parfitt, C. D. (*Canad. M. A. J.*, 14:1046, Nov., 1924) emphasizes the importance of early diagnosis and states that no chest examination can be considered complete without fluoroscopy and the reading of a pair of good stereoscopic plates. He speaks from the point of view of the sanatorium men to whom all these aids to diagnosis are easily available. The general practitioner, however, should be able to make his diagnosis and must in the majority of instances make his diagnosis and institute treatment without such aids. This he usually can do if he is willing to take the time and care.

Pritchard, J. S. (*Canad. M. A. J.*, 14:583, July, 1294) wisely urges conservatism on the part of X-ray men in interpreting abnormalities in X-ray films as denoting tuberculosis and is strongly of the opinion that a roentgenologist has no right to attempt to decide as to activity. These words are welcome.

Adamson, J. D. (*Canad. M. A. J.*, 14:610, July, 1924) points out that over-diagnosis of pulmonary tuberculosis is as bad as under-diagnosis. There are no symptoms or groups of symptoms found in pulmonary tuberculosis that are not to be found in other conditions. This is sane and sound advice.

Slater, S. A., (*Med. J. and Rec.*, 120:1, July 2, 1924) contrasted with Adamson's opinion believe that the early diagnosis of pulmonary tuberculosis cannot be over-emphasized. A judicious combination of both of these points of view will bring about the best results.

Treament: Miller, J. A. and Gebhart, J. C. (*Rev. of Tub.* x-6, 641, Feb., 1925) for the past 10 years have supervised the treatment of tuberculosis in the home and have compared their records with patients treated in well-known and high-grade sanatoria. By the words, "in the home" they refer to the "East River Homes" wihch is a model apartment house very much above the standard of apartments usually available for home treatment among the poorer classes. This invalidates most of the force of their argument. It is doubtful if any such experiment as this based on such a comparatively small number of individuals can disprove what most of us believe to be a fact, namely, that the mainstay of treatment for tuberculosis in individuals of all classes but especially the poorer classes is the sanatorium.

During the past year various cures and vaccines for tuberculosis have been given wide publicity. Among the best of these are Krysolgan and Sanochrysin. Investigation is still being carried on as to their effect but as yet there are no encouraging reports and physicians are urged to leave them alone.

Another method of treatment not recommended so much for tuberculosis as for ordinary coughs, colds, etc., is the chlorine gas treatment. Vedder, E. B., and Sawyer, H. P. (*J. A. M. A.*, 84:361, Jan. 31, 1925) discuss this method of treatment here and elsewhere. There has been much difference of opinion as to its value although it has many ardent supporters. Reports, however, from physicians at large, general practitioners, and nose, throat and lung specialists have been distinctly unfavorable. Its use will probably soon be discarded.

Pottenger, F. M. (*Am. Clin. Med.*, 3:209, Sept., 1924) urges rest as the basis of all treatment of tuberculosis and gives the interesting figures that it takes 20 per cent more effort to sit quietly than to lie quietly, 100 per cent more effort to walk around and 300 to 400 per cent to do strenuous exercise than to lie quietly. These figures speak for themselves.

Archibald, E. (*Arch. Surg.*, 10:328, Jan., 1925), Amberson, J. B. (*Med. J. and Rec.*, 121:32, Jan. 7, 1925), Maurer and Voltis (*Butl. et mem. Soc. nat. de Chir.*, 50:1105, Dec. 13, 1924, and Ochsner, A. J. (*Virg. M. Monthly*, 51:529, Dec., 1924) discuss the various operations and surgical methods applied to surgery of the lung while Lambert, A. V. S., and Miller, J. A. (*Rev. of Tub.*, 10:9, Sept., 1924) report on 20 cases in which they have performed the Sauerbruck

operation on pulmonary tuberculosis. Success depends upon careful selection of cases in accordance with the following indications:

1. Chronic fibrous cases in which artificial pneumothorax has been unsuccessfully tried;
2. Cases in which it has been partially successful;
3. Acute unilateral lesions which have responded more or less favorably to pneumothorax;
4. Similar cases in which a tuberculous pyopneumothorax has developed; and
5. Cases with a complete successful pneumothorax but where refills cannot be obtained.

Juvenile Tuberculosis: Drolet, G. J. (*Rev. of Tub.*, XI-4, June, 1925) points out how children have been the greatest gainers from the anti-tuberculosis campaign in this country during the past decade. From 1898 to 1923, for instance, the death rate for meningitis in New York City has been reduced 78 per cent and from pulmonary tuberculosis in childhood 68 per cent. The causes are due (1) segregation of advanced cases, (2) general pasteurization of milk, (3) general child welfare measures.

Watt, J. A. (*Lancet*, 207:1327, Dec. 27, 1924) and Crockett, J. (*Glasgow M. J.*, 20:375, Dec., 1924) both discuss the problem of tuberculosis in childhood clinically and in a more general way, particularly as to the importance of rest. They believe that the school period should be extended up to the 17th or 18th year if possible and that the mental faculty should be developed rather than the physical.

Chadwick, H. D. (Boston M. & S. J., 191:58, July 10, 1924) finds that 8 per cent of underweight children have evidence of tuberculosis. The first symptom is fatigue. A normal temperature is anything under 99.6 which last point is one that should be borne in mind. Again in the Boston Medical & Surgical Journal, 191:1069, Dec. 4, 1924, Dr. Chadwick urges the use of the word, "hilum tuberculosis." This term defines a phase of tuberculosis primarily an adenitis and just as much a clinical entity as cervical adenitis differing only in location. He further believes (Boston M. & S. J., 191:252, Aug. 7, 1924) that almost all of juvenile pulmonary tuberculosis is in reality a bronchial adenitis. He finds interscapular dullness and d'Espine's sign of value but believes that a positive Von Pirquet is necessary before a diagnosis is made. There are many who would doubt the value of d'Espine's sign as well as interscapular dullness.

Schloss, O. (*Southern M. J.*, 17:474, July, 1924) comments on the difficulty in recognising infantile tuberculosis in a curable stage as well as the manifest importance of such recognition. A tuberculin test and an X-ray examination are the only two reliable means of diagnosis.

Marfan, A. B. (*"Nourrison,"* 21:217, July, 1924) believes that auscultation and percussion are more conclusive than X-ray in diagnosis because they reveal *material* enlargement. Distinct and permanent percussion dullness in the interscapular space is good evidence of bronchial adenopathy. This dictum underscoring the adjectives "distinct" and "permanent" is of great importance.

Austrian, C. R. (*Tubercle*, 6:29, Oct., 1924) comments on the frequency with which slightly enlarged mediastinal shadows were found in children with a negative skin tuberculin test and thus presumably non-tuberculous as compared with those children with positive tests. In the negative test children some source of infection, non-tuberculous, was generally found in the tonsils or adenoids. This is valuable testimony.

Myers, J. A. and Tsiang, T. (*Rev. of Tub.*, XI-5:407, July, 1925) believe that d'Espine's sign even when present is not diagnostic of tuberculosis nor does a negative d'Espine's sign preclude tuberculosis.

Hawes, J. B. and Friedman, E. (Boston M. & S. J., 192:20, p. 954, May 14, 1925) call attention to the amazing difference of opinion among X-ray men and between X-ray men and clinicians as to the interpretation of X-ray shadows of the hilum region. Much further study as to the effect of non-tuberculous infections on this region is necessary. D'Espine's sign and the Eustace-Smith sign in their opinion are of no value while parasternal dullness and paravertebral dullness are of comparatively little value except in those cases where the evidence of enlarged glands is manifest. Such cases are rare, however. Diagnosis should be based on the history of exposure, a positive Von Pirquet test and constitutional signs and symptoms..

Heliotherapy: As far as treatment of non-pulmonary tuberculosis is concerned, there is no difference of opinion as to the value of heliotherapy and no modern sanatorium, hospital or other institution where such patients, whether children or adults, are kept can be considered complete unless there are adequate means for carrying on this method of treatment. It is true that there are many of us who believe that the Saranac Lake attitude and that of other health resorts, namely, that artificial sunlight from one of the quartz lamps is a never-failing and specific cure for intestinal tuberculosis, is a bit radical and exaggerated. There is no doubt, however, but that it apparently does some good in the vast majority of cases. Whether it can all be attributed to the lamp, however, is another question.

There seems to be a great difference of opinion as to whether heliotherapy, real or artificial sunlight, is helpful in pulmonary tuberculosis.

McCutcheon R. H. (*Rev. of Tub.*, XI-2:85, April, 1925) at his institution at Mont Alto, Pa., concludes from his studies on this subject that heliotherapy in pulmonary tuberculosis is a most valuable aid and its use should be encouraged and that it has a particularly remarkable effect in drying up moisture.

On the other hand Bronfin, I. D. (*Rev. of Tub.*, XI-2:96, April, 1925) comes to a diametrically opposite conclusion and reports that in pulmonary tuberculosis heliotherapy is not yielding good results and is as dangerous an agent as tuberculin if used injudiciously but that neither the favorable nor unfavorable effects can be atttributed with certainty to heliotherapy. The medical profession is urged to be extremely conservative in the use of heliotherapy in pulmonary tuberculosis until further evidence as to its value is at hand.

Tuberculosis and the Ex-Service Man: Hawes, J. B. (*J. A. M. A.*, 83:1490, Nov. 8, 1924), reporting on 1200 ex-service men calls attention to the large number who have been diagnosed as having tuberculosis and treated as such on insufficient evidence and who turn out not to have this condition. He urges more careful histories taken and that diagnosis be not based so much as appears to be the custom on X-ray evidence alone.

Pneumoconiosis: This subject is attracting a great deal of attention particularly by Industrial Accident Boards and insurance companies who handle the insurance in the industries where granite or other stone dust is a constant menace. While the work of Jarvis at Barre, Vermont, has done a great deal to help clear up the subject there is danger lest we go too far and consider that every man who suffers from lung symptoms in the course of his occupation as a granite cutter must necessarily have granite cutter's disease and not have tuberculosis.

Lowy, J. (*Wratch., Berlin,* 4:463, Dec., 1924), divides pneumoconiosis as a disease into two stages,—(1) symptomless, in which diagnosis can only be made by means of Xray; and (2) with symptoms. This latter can be further subdivided according to pathology, (a) bronchitic, (b) emphysematous (c) cavernous or bronchiectatic. Opinions differ as to the favorable or unfavorable effect of stone dust on an already present tuberculosis. Age is undoubtedly an important factor as young persons succumb quickly to an already present progressive tuberculosis after exposure to stone dust while in older persons the pneumoconiosis may retard the tuberculous process.

Miscellaneous: Mann, W. L. (*Canad. M. A. J.*, 14:593, July, 1924), discusses various septic but non-tuberculous conditions of the chest and emphasizes the need of finding, and if possible, eliminating any foci of infection as the most important factor in treatment.

Hopkins, B. H. (*Canad. M. A. J.*, 14:603, July, 1924), discusses the group of patients admitted to sanatoria who were found to be non-tuberculous. The striking point in this group is the indefiniteness of signs found in the lungs with a constantly negative sputum. The symptoms can and often do, simulate tuberculosis.

Gordon, A. H. (*Canad. M. A. J.*, 14:850, September, 1924), calls attention to this same group. J. H. Elliott, in discussing this paper calls attention to the great increase in non-tuberculous lung disease closely resembling tuberculosis ever since the influenza epidemic in 1918.

Rowland, S. (*Lancet*, 207:1224, Dec. 13, 1924), confirms the generally accepted opinion that conjugal tuberculosis is comparatively rare. This differs from the opinion of Dr. Barnes of the Wallum Lake Sanatorium who in an article a few years ago found a distinct increase in the incidence of tuberculosis among husbands and wives, one of whom having pulmonary tuberculosis.

Hallmann, R. (*Ztschr. f. Tuberk.*, 41:127, Nov., 1924), while urging as a matter of course that tuberculous persons take all precautions as to sneezing, coughing, etc. and avoiding intimate contact and kissing, does not believe that there is a great deal of infection from hotels, restaurants, etc., and that the use of disinfectants and the sterilizing of dishes and eating utensils is unnecessary except in advanced or dying cases. This is sound advice, the following of which would do away with a good deal of hardship.

CHAPTER NURSING SERVICE IN MAINE TOWN FINANCED

WHEN the York County, Me., Chapter faced the possibility of reducing its Public Health Nursing service because of lack of funds, its leaders resorted to the expedient of a bazaar. Not all bazaars are successful, and often leave little or nothing above expenses. But in the bazaar put on at Saco, public expectancy was raised to such a pitch through effective publicity that the people flocked in, leaving net proceeds of $2,000, which ensured the continuance of the service under the direction of Miss Mary McLaughlin.

The general chairman of the bazaar committee was Mrs. W. W. McIntyre, with Mrs. Enoch Lowell as assistant chairman. Mrs. Franklin R. Chesley, wife of Judge Chesley, Chapter Chairman, was general secretary of all committees. Nursing activities at Saco are under the chairmanship of Mrs. Edmund Blake.—*The Red Cross Courier.*

ACCOMPLISHMENTS OF THE N. H. BOARD OF HEALTH DURING JULY

329 preschool children examined.

150 boys' and girls' camps inspected and licensed.

299 cases of syphilis and 217 cases of gonorrhoea treated at State Board of Health Clinics.

Case Records of the Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY
RICHARD C. CABOT, M.D., AND HUGH CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 11371

MEDICAL DEPARTMENT

AN Italian electrician of thirty-six was referred from another Boston Hospital September 11, eight and a half years before his eighth and final admission, with a diagnosis of Pott's disease. He was a man of Herculean development, unable to stand after an illness beginning eleven months earlier with progressive pain in the back. An Albee bone graft was done September 15 over the seventh to twelfth dorsal vertebrae inclusive. He made a good convalescence. By December 17 he was walking all over the hospital without fatigue. January 17 he was discharged.

December 2, nearly two years later, he was readmitted. Since his discharge he had worked steadily and had been able to do everything he did before his illness. Four weeks before admission he fell fifteen feet without any mishap. He now entered for treatment of a septic hand following a scratch. The markedly swollen hand and arm were tied up in extension apparatus and treated with hot chlorinated soaks four times a day. December 4 he was discharged relieved.

August 3, two years and nine months after the last admission, he entered for the third time. He now gave a history of right orchidectomy for undescended testicle twenty years earlier and "inflammation of the kidneys" for which he was treated for a month in a hospital in Massachusetts fifteen years earlier, soon after he came to America. At that time he had frequency every half hour or so, nycturia 4-5, intense burning and some pain on micturition, and some fever. After treatment the symptoms had entirely cleared up. Since his operation he had had little "feeling" in his legs and sometimes had difficulty in controlling their movements, especially when he was nervous. He had been able to do his regular work, however.

For the past eight months he had had frequency and burning micturition, less severe than during his first attack. His most troublesome symptom was burning in the penis and along the course of the urethra on urination. The urine had at times been rather dirty.

Examination showed the entire left lung less resonant to percussion than the right and definitely dull above the angle of the scapula behind. The breath sounds were harsh and expiration was prolonged all over the left back, but especially at the apex and a patch at the base near the spine. No râles were heard. Whispered voice and tactile fremitus were slightly increased at the left apex and the patch mentioned.

Cystoscopy showed the trigone much injected and the left ureteral orifice partly obscured by a large flake of mucopus and completely blocked. (Divided function showed a good function on the right, practically none on the left. The total function was practically the same as the divided function from the right kidney. Tubercle bacilli were found in the bladder urine, none from the right ureter.*)

Left nephrectomy was done August 8. A pathological report of tuberculosis of the kidney was made. September 26 the patient was discharged, appearing comfortable and healthy. The wound was almost closed, but still draining.

During the next three months he was troubled with progressive burning and frequency increasing to 10-12 by day and 10-15 by night and with paroxysmal pains in the "canal" of the urethra. Several times he saw a slight discharge at the end of the urethra.

December 14 he entered the hospital for the fourth time.

Cystoscopy showed the bladder intolerant even under spinal anesthesia, holding only about four ounces. The mucosa was generally red and velvety. The left ureter was not seen at all. It was thought that the right ureter was stiffened and red. Various catheters could be passed only about half an inch. He was put upon constant drainage, which caused considerably more pain. After two days he was taken off the constant drainage. The following day he had severe frontal headache with fever. In the afternoon he vomited with relief. The day before his discharge he complained of slight stiffness of the neck and persistent slight headache.

December 26 he was discharged.

At the Tuberculosis Clinic of the Out-Patient Department he was given tuberculin and felt very well until the 20th of the following July. Pathological report on a guinea pig was positive for tuberculosis. He began to feel tired and had a feeling of "tightness" in the abdomen. Next day he had fever of 104°, chills and general malaise. The fever and chills continued until the day of his fifth admission, July 26. That morning he felt better and tried to do some work but had to go to bed and vomited three times. In the evening his temperature was 104.8° and on arrival in the Emergency Ward 104.4° with a pulse of 108.

Examination showed a questionable mass in the right abdomen, possibly the kidney. There was moderate tenderness in the right kidney region and the suprapubic region. There was

*The passage in parentheses was not given in the history as discussed by Dr. Young.

some voluntary spasm. The wounds of the left nephrectomy and the bone graft operation were well healed and not tender. The temperature came steadily down, reaching normal August 4. The evening of August 6 it again rose, reaching 102.8° August 7 without discoverable cause outside of the genito-urinary tract. August 9 and 10 the temperature was again normal. August 11 he had chills. He continued to have alternating periods of three or four days of fever and two or three days of normal temperature. September 3 he had bloody micturition and considerable pain. A bladder catheter specimen of urine was loaded with pus and showed colon-like bacilli and a moderate number of red blood corpuscles. Other urine examinations showed pus and motile bacilli. A blood culture showed staphylococcus albus. The spinal fluid showed three cells, ammonium sulphate negative, no organisms. X-ray showed the kidney outlines obscured by the intestine shadows. There were no shadows which suggested stone. The patient improved. The periods of fever became shorter and more infrequent, with lower temperature. After September 22 the temperature was not elevated and the patient was comfortable. September 30 he was discharged.

After leaving the hospital he felt much better, though he had attacks of anuria associated with severe pain in the right kidney region and enlargement of the right kidney, relieved by hot applications. For a month before his sixth admission the attacks of anuria had been more frequent, two or three a week.

December 29, three months after his fifth discharge, he was readmitted. During his eighteen days' stay in the hospital he ran a course of fever and chills with intervals of normal temperature, as he did at his previous stay. There was no oliguria. Cystoscopy showed no pain or intolerance. The bladder mucosa was practically normal except around the orifice of the right ureter, where it was very red and showed several small white tubercles. Catheters of various sizes passed into the ureter only about half an inch. The renal function was 50 per cent. No tubercle bacilli were found in the urine. The non-protein nitrogen was 53.4 mgm. January 15 he was discharged.

October 19, a year and ten months after his sixth discharge, he entered for the seventh time mentally confused. He gave a history of catching cold two weeks earlier. He had forgotten his last illness and said he had been perfectly well and working steadily for several years. He was said to have vomited.

Examination showed ammoniacal breath and slow deep respiration. The urine showed the slightest possible trace to a large trace of albumin at all but one of ten examinations. The renal function was zero at two tests, showed the slightest possible trace of color at one, less than 5 per cent. at one, 5 per cent. at another and less than 10 per cent. at a sixth. The non-protein nitrogen was 83 to 108 mgm.

The patient was given forced fluids. October 21 he had a convulsion with twitching. He was given 300 c.c. of five per cent sodium bicarbonate with definite diuresis. Next day he was very drowsy, voiding well. He was given two subpectorals of 3,800 c.c. and rectal tap water. He became more confused and slightly delirious, with frequent vomiting. The fluid intake was maintained by subpectorals. The night of October 23 he had two more convulsions. He took no fluids by mouth and did not retain the taps. He lost ground steadily until October 26; then he began to improve. He developed the thirst of a diabetic with a small urinary output. The lungs showed râles at both bases posteriorly. He showed more response to fluids given in any way. He vomited only once and looked suprisingly well. The non-protein nitrogen dropped to 83. December 5 he was discharged.

After his discharge he felt fairly well except for weakness, fatigability and dyspnea on the least exertion.

March 28 he began to feel chilly and was very tired and weak. The next day he had chills, some fever and continued tired feeling. Toward evening he had sore throat and pain and stiffness in the back of the legs, which "cracked" on movement. March 30 his throat was so sore that he could not swallow. This improved so that by admission he could eat without much discomfort. He had slight cough and some headache. In spite of his malaise and chilly feeling he continued to work until the afternoon of admission.

April 2 he entered for the eighth time, complaining of "grippe." He urinated two or three times by day, once or twice at night.

Examination showed a well nourished man shivering and complaining of cramps in his legs. The skin was warm and dry, with slight scaling. The breath was ammoniacal. The location of the apex impulse of the heart is not recorded. The left border of dullness was 11½ cm. to the left, 2 cm. outside the midclavicular line, the right border of dullness 3 cm. from midsternum. The supracardiac dullness was doubtful. Any murmurs if present were obscured by deep breathing. (At the last two admissions there were no murmurs.) The action was regular. Electrocardiogram showed normal rhythm, rate 100, left axis deviation. The blood pressure was 130/80. The lungs were clear, but there was a bronchitic cough. The rest of the examination, including the fundi, was normal.

During the first twelve days the temperature rose from 98.2° to 104°; afterwards it did not rise above 101.5 until the day before death, and from May 7 to 18 ranged from 97.7° to 100°. May 19 it dropped to 96°, rising to 103.6° May 22. The pulse was 65 to 135. The respirations were 8 to 34. The urine was alkaline at all but

two of sixteen examinations. There was a trace to a very slight trace of albumin at all. The specific gravity was 1.010 to 1.013. The output was 32 to 114 ounces. The sediment showed leucocytes at all examinations, often in large numbers, twice loaded with pus, rare to occasional red blood cells at six examinations. Two renal function tests showed a trace of color, two others zero. A guinea pig inoculated with urine April 26 was negative at necropsy. The hemoglobin was 60 to 35 per cent., the leucocytes 9,000 to 6,600 to 11,200, the polynuclears 79 to 66 per cent., the reds 3,040,000 to 1,776,000, with slight variation in size and in shape, slight achromia at one examination, none at another, platelets moderately increased once, decreased once, reticulated cells 3 to 4 per cent. The bleeding time was 2½ minutes. A Wassermann was negative, (negative also at the seventh and fifth admissions). A series of tests showed: April 3 fasting non-protein nitrogen 161, creatinin 6.7, uric acid 6.1; April 11 fasting non-protein nitrogen 89, creatinin 4.8, uric acid 6.3, calcium 5.8, phosphorus 7.3, CO_2 combining power 29.87; May 22, after 100 c.c. $CaCl_2$ twelve hours before, fasting non-protein nitrogen 246, uric acid 14.1, creatinin 14.9, phosphorus 15.5, calcium 6.4.

The patient had three convulsions April 5 and several April 6. Fluids were forced intravenously to the limit, also subpectorals by mouth. He was incontinent and required catheterization. There was bradycardia, a low respiratory rate and lowering blood pressure to 100/62. Rectal tap water was discontinued April 6 because of incontinence. The following morning he seemed brighter, but in the evening was irrational. Fluids were forced by special nurses, but with great difficulty. Rectal tap water was again given. April 9 he was comatose and unable to take fluid by mouth or by rectum. The temperature was again rising. April 11 there were general fibrillary twitchings which had ceased by the thirteenth. He was mentally clearer, but irritable. April 17 he had some cough. There were râles at both bases. He was very irritable. The temperature was down to 99.8°. April 27 he was much improved. April 30 the non-protein nitrogen was 130. He had some vomiting. May 3 salts were resumed and intravenous therapy. May 7 the non-protein nitrogen was 134. He felt better. He was up and about and looked much brighter, but felt tired after any exercise. May 16 he looked worse and May 18 stayed in bed most of the day. He vomited and could not retain salts. May 19 he became comatose. Intravenous therapy was given. He had one convulsion. The CO_2 was 7½ volumes per cent., the non-protein nitrogen 215. 1000 c.c. of 2½ per cent. sodium bicarbonate was given. May 20 he lapsed into coma again although two intravenous treatments were given and rectal tap water. May 21 he had several convulsions. The temperature rose, reaching 103.6° May 22. The pulse rose to 135 on the 22nd. On the 23rd the pulse fell to 105, the temperature rose to 102.2 and the patient became comatose, with no convulsions, and died.

Discussion

BY DR. EDWARD L. YOUNG, JR. AND DR. MAURICE FREMONT-SMITH

Dr. Young: Apparently at the first admisson there was no doubt of tuberculous infection of the spine. The good result from the bone graft shows what it can do in a case of this kind.

The second admission turns out to be of no serious importance, although a septic hand in a laboring man carries with it greater potential damage than the average acute appendix, because if the hand alone is put out of commission, even though life is saved, it may not only put the man out of commission but leave destitute a family dependent upon that hand for livelihood.

About five years after his first admission he comes in with a story of a more chronic condition. Any patient who is known to have tuberculosis anywhere and has a complaint of frequency, burning and slight fever arouses the suspicion of tuberculosis in the urinary tract. It is true that a tuberculous infection fifteen years before would in all probability have developed and made trouble before this, at least if that infection had been in the kidney, because so far as we know tuberculosis of the kidney once engrafted is never cured except by the removal of the kidney. It occasionally happens however that an infection may become quiescent and give no symptoms for a great many years although it is not actually cured. These urinary symptoms however have recurred, and added to that is the note that the urine itself had been rather dirty.

The description of the lung signs suggests trouble in the lung, but that is as far as the examination went.

The cystoscopy is suggestive of a tuberculous left kidney. It seems strange however that they do not tell us that the right kidney was free from pus and infection and had a good function, as that should always be done before the other kidney is taken out.*

The story of the next three months does not prove anything more than the remnant of tuberculosis in the bladder, because even with this amount of trouble the remaining kidney can be free of infection and the bladder be the cause of the whole picture. The examination, however, showing the stiffened and red right ureter and the obstruction to the passage, suggests that there is trouble in the right kidney even though they have not the actual proof.

Constant drainage in these cases is generally not well tolerated, and this is a typical story

*See footnote in the history.

when it is attempted. Apparently those in charge felt that there was nothing further that could be done in the hospital, and he was discharged for what treatment could be given in the Out-Patient Department.

Tuberculin is felt to be of little value in many forms of tuberculosis, but we feel that in urinary infections there are many cases which are benefited by it. Certainly cases have so markedly improved following the use of it that it seems as though it must be cause and effect.

The guinea pig test tells us only what we already know.

The story after the fourth discharge suggests that he had a miliary tuberculosis or that there was a secondary infection in some one of the tuberculous foci, possibly in the right kidney. The abdominal symptoms and the questionable mass in the abdomen would either bear this out or suggest an acute tuberculous process in the peritoneal cavity. The spinal fluid examination does not suggest any tuberculous infection there.

The progress during his fifth stay in the hospital suggests that the mass felt was an enlarged kidney and that it was the cause of the temperature either because of a secondary infection and abscess which discharged itself, or because of hydronephrosis.

At the sixth admission we have a good example of the possible remissions that can take place in this disease, and particularly in regard to the local condition. Here we have a bladder which is essentially normal except for the right ureteric orifice. There is, it is true, an obstruction in the right ureter, but the renal function of the one kidney is essentially normal for two, unless the test was poorly done. If the report is true we have to assume that the stricture is from the bladder infection.

No tubercle bacilli were found. This suggests that the process in the kidney if present at all is in the nature of cortical abscesses which drain into the pelves and that at times, such as existed during his stay, they are closed.

The non-protein nitrogen is the only thing which shows that something is wrong. It is higher than it should be for a man of this age. Assuming this test to be accurate I should doubt the accuracy of the last "red" test. No test should be accepted on one report unless it fits the clinical picture, and here it does not.

The seventh admission suggests to me the possibility of a tuberculous infection of the central nervous system. But the interesting thing is the examination of the renal condition. Although it was less than two years after the last test the renal function was very low and the non-protein nitrogen had gone steadily up. That brings in the possibility that the symptoms of central nervous trouble were in fact uremic and not tuberculous. His general behavior during this time seems to point towards renal insufficiency, but it also shows how a kidney damaged by a surgical condition can improve when it is washed through thoroughly.

This time however he went only about four months when he entered for the eighth time for a condition apparently not connected with the known infection. It is interesting that he urinated only two or three times by day and once or twice at night. It is very much better than he should have done with the infection which we believe to be present in the remaining kidney and bladder. He also is said to be well nourished in spite of all that he has been through and is now suffering. The red test is consistently negative. The guinea pig inoculation for tuberculosis did not show it. This is very surprising, as the guinea pig test is remarkably accurate. The possible explanations for it here are either a walled-off condition in the kidneys so that there were in fact no tubercle bacilli at the time the specimen was obtained, or that there was a slip of technique in the laboratory and that the test is wrong. I do not see how we can dodge the belief that the kidney is tuberculous in the face of the course of the disease as outlined and the zero function. The non-protein nitrogen rose to a fairly high figure and likewise the creatinin to a very high figure before death. The convulsions, drowsiness, and the irrational condition all seem to point toward the final scene of uremia. The case shows in a striking way the course of this disease and the possible remissions.

DR. FREMONT-SMITH: It seems to me nearly inconceivable that the urinary symptoms mentioned in his third admission could have been due to tuberculosis of the kidney and could have cleared up for fifteen years then to reappear. It seems much more probable that this cystitis was due to some other organism.

Fever and chills mentioned in the fifth admission are the symptoms of a pyelitis, and again almost certainly due to some other organism than the tubercle bacillus. Tenderness in the kidney region occurs both in simple pyelitis and in tuberculosis of the kidney. In the latter condition spasm is almost always present, and this is one of the means we have of differentiating the large, sometimes tender kidney of hypernephroma (in which spasm is usually absent) from the kidney with tuberculosis. It is interesting to theorize about the frontal headache, vomiting and slight stiffness of the neck occurring just before his discharge on the fourth admission. With the history, tuberculous meningitis would have seemed to me almost certain, yet he did not have meningitis at that time, nor in his fifth admission, when a lumbar puncture was done, nor did he ever develop it.

The attacks of anuria associated with severe pain must have been caused by the blocking off of the right ureter with a consequent hydronephrosis or pyelonephrosis.

At his sixth admission we have, then, a man with a tuberculous history, with one kidney removed for tuberculosis and evidence of second-

ary infection in the remaining kidney. Cystoscopy at this time reveals that there is probable tuberculous involvement of the right ureter, and we must postulate ascenting infection and tuberculous involvement of the right kidney. The patient is now beginning to show the effects of disturbed elimination of protein, the non-protein nitrogen being nearly double the normal. He is still able, however, to be discharged in sufficiently good condition to go for nearly two years before returning for his seventh admission. Now he is showing marked evidence of renal insufficiency, with an almost absent phthalein excretion and a non-protein nitrogen three to four times the normal. The picture is that of impending uremia. We can only guess at the cause of the fluctuations in kidney compensation. Why he should have even temporarily improved is a mystery. Cramps in the legs are symptoms rather commonly found in uremia or in the preuremic states.

It is very interesting that his blood pressure during his eighth admission was 130/80. It is evident that the high blood pressures found in chronic nephritis are due to some other factor than that of simple nitrogen retention. Animals from which the kidneys have been removed die of "kidney insufficiency" without any marked rise in blood pressure. The uremias occurring in patients of exactly this type, with tuberculosis of the kidneys, rarely if ever show high blood pressures. On the other hand, we have many cases of extreme blood pressures without any demonstrable kidney insufficiency. It would seem, therefore, that nitrogen retention and high blood pressure must be two definite, independent factors often running parallel, as in the typical chronic nephritis, but often again unconnected.

Convulsions also, while occurring in typical clinical uremia may be absent although the patient is dying of kidney insufficiency. This is the type of case in which I should have expected few convulsions or none. An article by Feinblatt in the BOSTON MEDICAL AND SURGICAL JOURNAL, September 20, 1923,* is interesting. He studied forty-eight cases in which the blood urea nitrogen rose to 50 mgm. or more, tabulated the symptoms, and found drowsiness, vomiting, headache, dyspnea and edema occurring frequently in these cases. Convulsions were observed in only six patients.

We should expect in this case to find a large white kidney, with probable destruction of almost the entire parenchyma, and perhaps fibrous walling off of much of the caseous portions from the pelvis of the kidney. Evidence of secondary infection within the pelvis will be present, the colon bacillus probably responsible. There will also be tuberculous ulceration of the bladder, probable tuberculosis of the lungs, perhaps healed. If examination of the spinal cord is made it will be interesting to discover whether there is pressure upon the cord or not,—the man having complained of some abnormal sensations in his legs and some slight difficulty in walking. I see no reason to expect pathology in the heart or within the abdominal cavity. Because of the presence of convulsions I look for edema of the brain. It is possible that amyloid degeneration in the liver may be found.

*Uremia. The syndrome of nitrogen retention. Henry M. Feinblatt. Boston Medical and Surgical Journal, Vol. 189, p. 399.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Tuberculosis of the genito-urinary tract.
Uremia.
Secondary anemia.
Amyloid degeneration?
Operations, spinal union, nephrectomy.

DR. MAURICE FREMONT-SMITH'S DIAGNOSIS

Tuberculosis of the kidney and bladder.
Probably tuberculosis of the lungs, perhaps obsolete.
Edema of the brain.
Possibly amyloid liver.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesions*

Tuberculosis of the right kidney and ureter.
Tuberculosis of the bladder.
Tuberculosis of the retroperitoneal glands.
Miliary tuberculosis of the liver and spleen.

2. *Secondary or terminal lesions*

Edema of the lungs.
Focal pneumonia, right lung.
Slight arteriosclerosis.
Slight hypertrophy and dilatation of the heart.

3. *Historical landmarks*

Scars of old operation wounds, nephrectomy and spinal union.
Chronic pleuritis.
Chronic perihepatitis and splenitis.

DR. RICHARDSON: The head was not examined.

In the left lower back there was a long old linear scar. In the region of the lower part of the sternum there was slight depression. On the back between the shoulder blades there was an old linear scar. In the region of the middle of the scar there was a small knuckle-like protuberance. In the region of the ninth thoracic vertebra anteriorly, right lateral aspect, there was a small area of yellowish homogeneous caseous-like material which extended slightly into the body of the vertebra. Further dissection was restricted.

The peritoneal cavity and appendix were negative. The gastro-intestinal tract and the mesenteric glands were negative.

The retroperitoneal glands along the abdominal aorta were slightly enlarged and showed small caseous areas in places.

There was no fluid in the pleural cavities. The lungs were bound down by old adhesions on each side. The trachea and bronchi and the bronchial glands were negative.

The apices of the lungs were negative. The right lung showed a focus of gray-red pneumonia in the upper part of the lower lobe about 5 cm. in dimensions. There were several smaller similar foci in the lower part of the lobe. There were no areas of pneumonia in the left lung. The lung tissue generally showed much edema.

The heart was slightly enlarged and the myocardium flabby. There was considerable dilatation of the cavities on each side. The valve circumferences were increased except that of the mitral. They were otherwise negative. The coronaries were free and negative. The aorta and great branches showed only a slight amount of fibrous sclerosis.

The liver was of fair size and presented a few scattered old adhesions to the diaphragm; surface elsewhere smooth. The tissue was pale brown-red and flabby. No tubercles were made out macroscopically, but some were found under the microscope.

The spleen was slightly enlarged. There were a few old adhesions to the diaphragm. The tissue showed scattered through it minute to small fibrocaseous nodules.

The left kidney was wanting. The left ureter presented as fibrous cord which in the region of the bladder showed a minute lumen. The right kidney and ureter and the bladder showed well marked tuberculous lesions. The prostate and seminal vesicles were negative. The right testicle was wanting, the left testicle negative.

NOTE BY DR. FREMONT-SMITH

We are told again and again that in the various extrapulmonary tuberculous infections a primary underlying tuberculosis of the lungs is present. Kocher records 451 autopsies on cases of urogenital tuberculosis, 80 per cent. of which showed pulmonary lesions, active or inactive. It is easily conceivable however that tuberculosis of the urogenital tract may occur independent of lung involvement by way of the blood stream. The lungs are more exposed to tuberculous infection than any other part of the body. All tubercle bacilli passing beyond the barrier of lymphatic glands protecting the upper part of the alimentary tract or the glands of the mesentery pass by way of the lymphatics directly into the left subclavian vein, thence into the right side of the heart and so into and through the lungs. It is natural, then, that the lungs should be most frequently involved. We have all seen instances, however, of tuberculosis of the peritoneum and of the glands, and of course of the pleura, in which the lungs have apparently escaped. It is interesting that the same holds true in this case.

It would seem that in a case of this sort complete examination of the central nervous system should have been done if possible. Tuberculous meningitis is unusually common following urogenital tuberculosis. We must assume that permission was not granted.

CASE 11372

MEDICAL DEPARTMENT

An Italian patent leather worker of thirty-eight entered August 27 for study of anemia. The chief complaints were headache, dizziness, a sense of weight in the stomach, and weakness. He spoke and understood English with great difficulty. Except for language defects the history was believed to be reliable. At fourteen he had malaria for six months. He had gonorrhea at twenty-four. Eighteen months before admission he got some of the chemical that he worked with in his eye. This healed without defect. He had some dyspnea on exertion.

For three and a half months his eyes had felt sore. Three months before admission, when in perfect health, he began to have throbbing headache involving the entire head, especially the region of the temples. This had steadily grown worse. The slightest exertion or shaking the head increased the headache and made him dizzy. His head felt hot and big. He became so dizzy he almost fell. He had buzzing in the head if he tried to sleep. Since the onset of the present illness he had had a sense of weight in his stomach, loss of appetite and constipation. He vomited once two months before admission. The discomfort in the stomach followed eating and lasted three or four hours. He had grown progressively weaker until he would have stopped work three weeks before admission except for the necessity of supporting his family. A week before admission he did stop. Upon exertion such as going upstairs his legs became very tired and he was dyspneic, felt very heavy, throbbed all over, and had a sense of weight in the chest. His friends had noticed since the onset of his illness a change in his color, which was formerly red and healthy. He attributed his illness to his work, which was spreading the mixture used in coating patent leather. He had done this for three years and a half. The place where he worked was always filled with fumes, and he thought the people employed there were seldom able to work a full week. As a rule he had to take one or two days off each week.

Examination showed a pale, sallow man with an anxious expression, complaining of headache. The mucous membranes showed marked pallor. There was slight pyorrhea. The location of the apex impulse of the heart is not recorded. The left border of dullness was 9 cm. to the left of midsternum, 1 cm. outside the midclavicular line. There was no other enlargement to percussion. The blood pressure was 125/70 to 110/60. In the right upper quadrant a mass

was felt with a sharp edge descending on respiration 9 cm. below the costal margin. There was some maceration between the toes and discoloration of the skin on the sole of the right foot. Rectal examination showed one large external hemorrhoid. The prostate was somewhat irregular and slightly hard.

The temperature was 97° to 100.5°, the pulse 63 to 102, the respiration normal. The amount of urine is not recorded. The specific gravity was 1.020 to 1.025. The urine was cloudy at one of four examinations and showed the slightest possible trace of albumin at one and rare leucocytes at all. The renal function was 10 to 35 per cent. At a gastric analysis the fasting contents were 33 c.c. of whitish fluid, much mucus, free HCl 0, total acid 4 c.c. of N/10 NaOH, guaiac very faintly positive, rare red blood corpuscles. A test meal gave 85 c.c. of yellow fluid with bread particles, some mucus, free HCl 6 c.c. N/10 NaOH, total acid 16 c.c., guaiac negative. X-ray showed no definite evidence of disease in the gastro-intestinal tract or the kidneys. Lumbar puncture showed an initial pressure of 295, after withdrawal of 25 c.c. 175, respiration and pulse oscillations normal, three cells, ammonium sulphate slightly positive, alcohol and Wassermann negative, total protein 26, goldsol 0000000000, sugar 64. The fundi were pale. The vessels were filled and tortuous. There were many hemorrhages and white areas in the retina.

The day of entrance the hemoglobin was 35 per cent., the leucocytes 2,600, the polynuclears 68 per cent., the reds 1,200,000. The smear showed some achromia in places but no true achromia. There was anisocytosis with frequent macrocytes and polychromatophilia and rare microcytes, some stippling. Variations in shape were within normal limits. One intracellular structure with a blue border and two red dots seemed to be a malarial plasmodium. At three other examinations, one on the same day, no malarial organisms were found. The reticulated cells were 2.6 per cent. The platelets were diminished. The bleeding time was twenty-three minutes. A Wassermann was negative. The non-protein nitrogen was 34 mgm. A blood culture was sterile. Fragility was .46 to .34. The serum dilution was 1:25. The coagulation time was 12 to 15 minutes, clot retraction very slight in three hours, over night very slight, character of clot good. A blood consultant reported, "I doubt pernicious anemia. Benzol as cause logical, or other poisons. Treat as such and transfuse unless rapidly better. A possibility of the aleukemic type of leukemia with extensive marrow involvement."

The patient had chilly feelings and sweating at various times. September 4 medical transfusion of 640 c.c. of blood was done. The red count was 1,440,000 before it, 1,920,000 after it. It was followed by loss of pallor but also by blurring of vision, increased headache and pain over the spleen. September 6 the hemoglobin was 60 per cent. Eight later tests showed the same. The red counts varied from 1,360,000 to 2,560,000. A smear September 11 showed numerous well filled macrocytes, a few microcytes, rare poikilocytes, not much destruction. September 12 the polynuclears were 47 per cent. There was moderate achromia, a few polychromatophilic cells, some variation in size and shape and some macrocytes. The platelets were decreased at both these examinations. September 22 the reticulated cells were 1.2 per cent.

Although it was felt to be important that the patient should have a second transfusion the expense could not be met and he was discharged September 25 to go home and procure a donor.

After leaving the hospital he felt weak, especially in the legs, and was troubled by pounding sensations in his abdomen, neck and head. He had paroxysmal pain starting in the left flank and radiating upward into the left chest, occurring four times a week without relation to meals or exertion and lasting from a few moments to five hours.

October 20 transfusion of 600 c.c. of blood was done in the Emergency Ward. Before it the hemoglobin was 50 per cent. After it he ran a temperature of 101° to 102°.

October 22 he reëntered the wards.

Examination was as before except that the skin was normal in color, the throat showed a small nodule on the left posterior pillar, and the lungs showed râles at both bases, more on the right.

The temperature was 102° at entrance, afterwards 98.4° to 100.1°. The pulse and respiration were normal. The hemoglobin was 80 per cent. At two later examinations it was 60 and 65 per cent. The red count was 2,280,000, the leucocytes 2,400, the polynuclears 62 to 64 per cent. One smear showed no stippling, slight anisocytosis and poikilocytosis. Later smears showed a few polychromatophilic cells with areas of stippling, rare microcytes, moderate variation in size, platelets very rare, reticulated cells 3 per cent.

October 24 he was discharged relieved.

At the time of his third admission, December 4, six weeks later, he said he felt about as he did when he was discharged. His vision was perhaps a little better. Buzzing in the ears was constant and dyspnea marked on exertion. He still had marked fatigue and weakness, and complained of pain and soreness in the left upper quadrant, sometimes spreading to the left shoulder and the left side of the neck. Two weeks before the present admission he saw a little blood in the stool. He urinated two or three times at night. Examination was as before except that the pulmonic second sound was double at times. The pupils were irregular, their reactions normal. There were a few

râles at the right base. The left scrotal sac showed an eruption, possibly due to irritation. The ankle-jerks were not obtained.

The temperature was 97° to 100.5° with one rise to 102° the day after admission. The pulse was 50 to 84. Before transfusion the hemoglobin was 50 to 75 per cent., the reds 2,464,000 to 3,456,000, the leucocytes 3,150 to 5,600, the polynuclears 66 per cent. There were many large red cells, a few small ones and a moderate number of tailed forms with slight achromia, some polychromatophilia, slight poikilocytosis. The reticulated cells were 2.7 per cent. at one examination, less than 0.5 per cent. at another. A Wassermann was negative. Examination of the right eye showed a small opacity on the posterior pole of the lens. Both eyes showed somewhat tortuous vessels, no hemorrhages.

December 16 transfusion of 500 c.c. of blood was done. After it the hemoglobin was 80 per cent., the reds 3,875,000. That evening there was slight transient urticaria. The next day this was gone. A gastric analysis showed 70 c.c. of fasting contents with a few specks looking like blood, free HCl 9 c.c. of N/10 NaOH, total acid 25 c.c., guaiac negative. A test meal gave 45 c.c. of slightly yellow mucoid material, free HCl 0, total acid 15 N/10 NaOH, a trace of guaiac. In both cases microscopic examination showed nothing remarkable.

December 18 the patient was discharged with orders for an anemia diet and dilute hydrochloric acid minims xxx with meals.

January 3, two weeks after his discharge, he was seen at the Industrial Clinic and seemed better except for dyspnea and muscular soreness on exertion. The hemoglobin was 65 per cent., the leucocyte count 4,300, the red count 3,250,000, with considerable polychromatophilia and variation in staining. January 10 the hemoglobin was 80 per cent., the leucocyte count 4,200. At the Eye and Ear Infirmary the vision was found to be 20/200+, right eye, left eye the same; no improvement. The fundi showed tortuosity of the vessels; hypertension? The discs were not pale. The fields showed peripheral contraction. The blind spots were somewhat enlarged. There was relative central scotoma for green and blue. January 30 the hemoglobin was 70 per cent., the leucocyte count 4,700, the red count 3,850,000. February 16 the hemoglobin was 70 per cent., the leucocyte count 4,200, the red count 4,500,000. April 10 the hemoglobin was 75 per cent., the leucocyte count 4,400. April 17 the hemoglobin was 70 per cent., the white count 3,800. June 12 his weight had increased 20 pounds since he was first seen. He was a little neurasthenic, easily fatigued, and subject to various complaints. The hemoglobin was 75 per cent., the leucocyte count 6,300 to 7,000. July 23 he was having some body pain, headache, and a heavy feeling. He was doing light work. His appetite and sleep were only fair. He was better except for general malaise. The hemoglobin was 80 per cent., the leucocyte count 4,000. Examination at the Eye and Ear Infirmary showed a pterygium of the right eye which became irritable. Its removal was advised. August 1 blood examination at the Industrial Clinic showed the hemoglobin 90 per cent., leucocytes 6,000. At the Eye and Ear Infirmary the fields were found to show slight peripheral contraction. The blind spot was almost normal. There were no central scotomas. The fundi were essentially negative. The vision of the right eye was 20/70, with correction 20/50+, that of the left eye 20/70, with correction 20/40+.

CASE 11373

Medical Department

A Swedish leather factory operative of forty-three entered November 26 complaining of weakness and shortness of breath of five weeks' duration. The family history was good so far as known. The patient had always had good health. He had pneumonia at twenty-eight and rather frequent colds. In his youth he used to have nosebleeds. For eleven years he had had bleeding piles and sometimes small traces of blood in the stool. He occasionally urinated once at night. He worked in a room where leather was being covered with a solution which smelled like alcohol. None of the other workers had had any trouble. The summer before admission he weighed 190 pounds, his best weight; four weeks ago 185. The history seemed reliable as far as it went, but possibly incomplete.

Seven years before admisson he had an attack of weakness and dyspnea lasting two weeks. He stopped work for a week and a half; then he had no further symptoms until six weeks before admission, when he had a severe nosebleed, three days later another, and three days after that a third very severe one with bleeding even in the mouth, around the teeth. He became very weak and short of breath and developed severe headache starting behind the right ear, spreading up over the ear to his forehead and lasting all day. This was not present every day. He found traces of blood from the left ear in the morning. His vision became so poor that he could not read. His fingers went to sleep and felt prickly. His appetite was very poor. Sometimes on getting up in the morning he had sharp knife-like momentary pains over the precordium.

Examination showed an obese, pale man with a rather puffy face. There was crusting in the left nostril. There were several carious teeth. The heart was not enlarged. The sounds were normal. There was a rough murmur throughout systole, loudest at the apex, radiating to the axilla and heard at the base, where the first sound seemed occasionally doubled. The blood pres-

sure was 145/70. The lungs were clear. The abdomen was negative except for a palpable mass in the right upper quadrant, especially in the midline, its edge difficult to make out; probably liver. There was some coarse tremor. The pupils were normal. The knee-jerks and ankle-jerks were hyperactive. There was pseudoclonus.

The temperature was 97.7° to 99.7°, the pulse 65 to 91, the respiration normal. The amount of urine is not recorded. The specific gravity was 1.020 to 1.028. There were occasional leucocytes at two of three examinations. The renal function was 50 per cent. A Wassermann was negative. The fasting contents of the stomach were 45 c.c. of thick turbid slightly yellow fluid, no free HCl, total acid 6, guaiac positive, microscopic examination negative. A test meal gave 50 c.c. of bile-tinged turbid fluid, no free HCl, total acid 15. The stools showed a very strongly positive guaiac at all of four examinations. X-ray showed no definite evidence of organic disease of the stomach or duodenum. The cecum appeared normal.

The hemoglobin was 35 to 55 per cent., the leucocytes 3,200 to 1,300, the polynuclears 63 to 43 per cent., the eosinophils 1 to 5 per cent., the reds 1,040,000 to 2,152,000. November 26 the reds showed anisocytosis and poikilocytosis. The platelets were greatly diminished in number. November 27 the reds were well filled with hemoglobin, the average cell was large, frequent microcytes and poylchromatophilia, moderate anisocytosis and poikilocytosis, platelets diminished. December 1 there was marked variation in size and shape. The reds tended to be larger than average and well stained. There were frequent polychromatophilic cells. The platelets were markedly diminished. There were two normoblasts. The bleeding time was 2½ minutes. The reticulated cells were 2½ per cent. The serum dilution was 1:45. The coagulation time was 6 to 12 minutes, with $CaCl_2$ 14 minutes. Clot retraction was nil in 2½ hours, in 24 hours very small, light upper layer and dark lower layer.

After some speculating as to the diagnosis the Industrial Clinic was consulted and reported December 2, "It seems possible that the anemia may be due to benzol or acetone used in the process in which he works. Further investigation will be necessary in regard to his work before this can be established." Later a second report was sent; "For the past year the patient has been using large amounts of benzol at his work. . . . The blood findings and lymphocytosis are not inconsistent with benzol poisoning. Transfusion is the most effectual therapy, as the bone marrow is poisoned as well as depleted."

December 9 transfusion of 480 c.c. of blood was done without incident.

December 11 the patient was discharged to the Out-Patient Industrial Clinic.

Records of the Clinic show that January 10, a month after leaving the wards, he was a little better. His color was good. March 6 he was slightly dyspneic and had some muscular pain. Blood examination showed 6,400 leucocytes, hemoglobin 73 per cent., 4,150,000 red cells, moderate achromia, variation in shape and staining. April 8 the blood showed 6,200 leucocytes, 80 per cent. hemoglobin, 4,400,000 red cells; April 24, 6,400 leucocytes, hemoglobin 80 per cent., 4,870,000 red cells.

Discussion, Cases 11372 and 11373

by dr. john w. s. brady

These two cases illustrate the same occupational intoxication. The difference between the two perhaps is due to individual idiosyncrasies and perhaps in part to racial characteristics and habits. The work done and substances used were identical in both cases.* In the first case the tendency is purely to anemia complicated somewhat by ocular disorders. In the second case the outstanding factor is the hemorrhagic tendency, which seems to be characteristic of the individual, inasmuch as the history records previous nosebleeds and bleeding piles. I think the acute loss of blood undoubtedly increased the severity of the anemia, which from the subsequent course of the disease is shown to be less serious in this individual.

In regard to the blood count in general there are several things of interest. (1) Although the classic description of benzol poisoning presupposes a marked leukopenia, in these cases there is no relative leukopenia, the white cells being reduced in merely normal proportion to the rest of the blood elements. The platelets are excepted, since accurate platelet counts were not made. (2) The classic description requires also a reduction of the polymorphonuclears. In the present cases these elements are at times normal in their proportion, at times slightly reduced, but never excessively so. It is possible that other chemical substances used, ethyl and butyl alcohol, acetone, naphtha, and similar substances, influence the action of benzol toward producing the above mentioned change. Benzol however is rarely used in its pure form; and one might draw the conclusion from the above that anemia of any type occurring in workers exposed to benzol should require their immediate removal from the occupational exposure before the condition becomes irremediable.

A word as to prognosis. In these two cases although the individuals are not yet normal there seems to be every reason to expect a favorable outcome. The complete recovery of industrial compensation cases is affected by so many factors—the bitterness of the contest for recognition of the condition, the individual's treatment at the hands of insurance companies and physicians, his financial and his home situation—that

*Both men were occupied in coating leather with a preparation of guncotton dissolved in a mixture of benzol and denatured alcohol containing also butyl alcohol, acetone, and other substances.

the outcome is always problematical. Furthermore, in the case of one of these patients the home atmosphere is extremely disturbing. It does not however seem unjustifiable to infer that benzol poisoning recognized and accepted in its earlier stages may under appropriate treatment result in a favorable outcome.

DIAGNOSIS, CASE 11372

Chronic benzol poisoning.

DIAGNOSIS, CASE 11373

Anemia due to benzol poisoning.

ITINERARY OF TRIP TO AUTUMN MEETING OF THE MASSACHUSETTS STATE NURSES' ASSOCIATION, PITTSFIELD, MASS., OCTOBER 9-10-11, 1925.

October 9: Leave Boston from Westminster Hotel (Copley Square) at 8 A. M. in "Mohawk" touring limousines. Arrive Greenfield at 1:00 P. M. Luncheon provided at the Weldon Hotel. Leave at 2 P. M. over the Mohawk trail, arriving Pittsfield 5.30 P. M.

October 10: In Pittsfield, attending the Autumn Meeting of the Massachusetts State Nurses' Association.

October 11: Leave Pittsfield at 1:30 P. M. over Jacob's Ladder. Supper provided at Hotel Kimball, Springfield. Arrive Boston 11 P. M.

Cost of above including round trip transportation Boston to Pittsfield and return, with luncheon at Greenfield and supper at Springfield will be, each person, $16.76.

HOTEL ACCOMMODATIONS

The Maplewood Hotel, which is operated on the American plan, has been selected as official headquarters, and the hotel management advise that all requests for accommodations should be made to them direct.

Seat reservations in the "Mohawks" should be made as early as possible, by letter or telephone (Main 4758-4759-4856), to Geo. E. Marsters, Inc., 248 Washington Street, Boston, Mass.

MARY ALICE MCMAHON.

Boston State Hospital.

PROTECTION AGAINST COMMUNICABLE DISEASES

IF your neighbor's children have a contagious disease you do not want to give it to your children.

In order to check the spread of contagious diseases and to help you provide proper care for members of your family sick with contagious diseases, the laws of Massachusetts require you as a householder, if you know that a person in your family or house has a contagious disease, to notify the City Health Department. If the sick person has a physician, the physician also is required to report the case. If you, as a householder, know you have a person in your house or family ill with diphtheria, scarlet fever, measles, chickenpox or whooping cough, or any of several other contagious diseases, you are liable to a fine of $100 if you do not notify the Health Department, even though the person may not seem sick enough to need a physician.

But you are not doing all that is necessary to protect either your family or your neighbors by merely notifying the Health Department when you think you may have a case of contagious disease in your house.

A person who is beginning to be sick with a contagious disease is dangerous to other persons before anyone, even a physician, can tell if the person is developing a contagious disease.—*Bulletin Boston Department of Health.*

LOCATION FOR A DOCTOR

A CORRESPONDENT in New Hampshire writes that he knows of the "best location for a doctor in the whole N. E. states." We will give the address of this writer to any doctor who may be interested.

RHODE ISLAND MAKES MENTAL HYGIENE SURVEY

THE mental hygiene survey just completed for the penal and charitable commission of Rhode Island by the National Committee for Mental Hygiene is covered by a report of 117 pages which gives in detail a type of state organization which enables the expression of sound policies and is calculated to secure for its administration, executives capable of dealing with the problems of sickness, dependency, and delinquency in the state. Full statement is made of what constitutes adequate institutional capacity and personnel for carrying on this work. The need is stressed for a psychopathic hospital which would be the place for thorough diagnosis of all sorts of mental conditions by competent persons.

The woeful lack in public schools of a vigorous policy of meeting the needs of handicapped children calls for an increase in number and variety of opportunity classes. A traveling clinic for work in the schools as well as in clinical examination of prisoners is also indicated. Among other important recommendations may be noted the following: Provision for examining children, for educating them in ways that have been proved practicable, and for treating any nervous conditions that may exist; erection of a supervisory system that will extend protection and guidance to all mentally handicapped persons in the state; modernizing a few outworn laws.—*Exchange.*

THE BOSTON
Medical and Surgical Journal
Established in 1828

Published by The Massachusetts Medical Society under the jurisdiction of the following-named committee:

For three years WILLIAM H. ROBEY, JR., M.D.
ROGER I. LEE, M.D.
ROBERT B. OSGOOD, M.D.
For two years JOHN W. BARTOL, M.D.
HORACE D. ARNOLD, M.D.
CHANNING FROTHINGHAM, M.D.
For one year HOMER GAGE, M.D., *Chairman*
EDWARD C. STREETER, M.D.
EDWARD W. TAYLOR, M.D.

EDITORIAL STAFF

DAVID L. EDSALL, M.D.
WALTER B. CANNON, M.D.
REID HUNT, M.D.
FRANCIS W. PEABODY, M.D.
JOHN P. SUTHERLAND, M.D.
S. BURT WOLBACH, M.D.
GEORGE R. MINOT, M.D.
FRANK H. LAHEY, M.D.
STEPHEN RUSHMORE, M.D.

WALTER P. BOWERS, M.D., *Managing Editor*

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D.
WILLIAM B. BREED, M.D.
JOSEPH GARLAND, M.D.

SUBSCRIPTION TERMS: *$6.00 per year in advance, postage paid for the United States, $7.56 per year for all foreign countries belonging to the Postal Union.*

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 126 Massachusetts Ave.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The Boston Medical and Surgical Journal, 126 Massachusetts Ave., Boston, Mass.

SHALL WE HAVE AN ACADEMY OF MEDICINE?

AT frequent intervals communities are obliged to met conflicting opinions. The typical American is restless under the spur of his ambition for better conditions. Some localities especially blessed with fine institutions may at times become too tranquil and well satisfied, thereby leaving to others openings in the front ranks of progress.

Boston has been famous for its achievements in business, arts, science and literature and with its long history of progress may have as a whole developed a spirit of conservatism. But there are in this community just as earnest and active seekers after the best in life as ever before in the history of the City, and if it can be shown that a given movement may create something really better than has hitherto been achieved some person or group will rise to the occasion.

The medical profession never tires of referring to Holmes, Bowditch, Bigelow, the Warrens and the Cabots. It may now take pride in the great contribution to medical education secured by the committee appointed to secure funds for the Harvard Medical School Dormitory under the leadership of Elliott P. Joslin.

With this last notable achievement, shall we rest and recuperate before essaying a still greater task or may we not feel so stimulated by success that even a larger opportunity seems well within our powers? Does the growing custom in almost all large centers of population inspire us to make the sacrifice necessary to secure an Academy of Medicine?

The answer will be forthcoming on the part of some that we already have an academy of medicine in our Medical Library, while another group may ask for a definition of the term, academy of medicine.

To the first it should be stated that the Boston Medical Library has been and is more than a library. It has been in every practical sense an academy of medicine in that it has been a center for medical activities and in addition has met the needs of this section so far as a medical library is concerned.

The wisdom of its originators has been demonstrated by its remarkable growth, being now the fourth in size of medical libraries in this country. It has tried to meet the needs of the people in every way even to the extent of growing beyond its equipment. It needs more room for books and periodicals and if it could expand in other ways there might be no need for any other academy of medicine. Unfortunately, however, the Medical Library has not the funds to meet its present needs, nor can adjacent property be acquired which would provide for more than temporary or makeshift growth so far as accommodating medical and other allied interests is concerned.

The present condition of the Library and the desire for an amalgamation or segregation of medical and allied interests is the reason for the agitation of this problem. Parenthetically it should be stated, no plan could succeed or even be thought of which is not built about the Library as a center of influence.

So far as the name is concerned the word "academy" does not in the sense applied here mean an institution with a teaching curriculum but its significance may be conveyed by the use of the term "medical center" for, in addition to the library, medical, dental, nursing and public health bodies could find in an adequate building a common meeting place and through the facilities provided unite in plans for service to humanity.

Accommodations for activities suggested above should be more than ample for present needs for it has been found that libraries outgrow even the most ambitious plans within a comparatively few years and societies which have important functions expand faster than is usually expected.

Any consideration of the problems involved must of necessity seem unduly ambitious to a casual observer but should be based on the experience of such institutions in other cities. Fortunately the subject has interested some of our most active and influential physicians and a

committee has been formed to take over the inauguration of a campaign to secure funds.

The project is large and must be met in a large way if it is to be successessfully carried through. There will be abundant opportunities for all to help.

DIAGNOSIS OF EARLY SCURVY BY X-RAY

WELL marked cases of infantile scurvy with sub-periosteal and other hemorrhagic signs while not of frequent occurrence, are nevertheless not unusual in hospital practice. It is not unfair to assume, however, that latent or so-called border-line cases may be more common than is ordinarily supposed. Such cases may frequently pass unrecognized. K. F. Pelkan has recently published (*Am. J. Dis. Child.*, 30: 174, August, 1925) the results of observations made at the Children's and Infants' Hospitals of Boston on roentgenography in early scurvy. Experimental work was conducted on guinea pigs, animals that react fairly uniformly to a scorbutic régime, and clinical cases were observed.

This author has shown that early scurvy in a stage long before sub-periosteal hemorrhages occur shows changes in the long bones that may definitely be interpreted as scorbutic in origin, and assist materially in the early recognition of the condition.

The essential points in the roentgenogram of a well developed case of scurvy are listed by Pelkan as follows:

1. A finely irregular, broadened, well-calcified epiphyseal line.

2. A small spur at the lateral edge of the epiphyseal line. Occasionally dislocation of the entire epiphysis.

3. An area of decreased density (scurvy line) immediately back of the epiphyseal line, which represents lack of calcification of the newly formed spongiosa.

4. A very thin cortex, often merely a narrow white line.

5. Glass-like transparency of the shaft. No trabeculations seem as in normal bone or in rickets.

6. A broad, finely irregular white edge on the epiphyseal center of ossification of the long bones. Less advanced cases are said to show practically all of the before-mentioned changes except the lateral spur of the epiphyseal line.

The borderline cases show usually only three of these characteristics, namely: the broadened epiphyseal line, the dense shadow around the center of ossification of the epiphysis and the absence of trabeculation in the shaft.

Prevention, better treatment, more accurate diagnosis and earlier recognition of disease are the four lines along which advances in medicine are progressing. The work of Pelkan should prove of considerable value in promoting the earlier recognition of a disease of which the cure is already known.

A FEW FACTS ABOUT CANCER

IN the campaign notes distributed by the American Society for the Control of Cancer in the August issue it is stated that one of the two principal objects of the Society is the collection of statistical information concerning the prevalence of cancer. Since cancer is not a reportable disease, that deaths occur from intercurrent affections attacking the cancer victims before the malignant process destroys life and that there is a considerable percentage of errors in diagnosis, it is evident that the recorded statistics do not convey a true record of the incidence of the disease and it is considered reasonable to state that there are three times as many cancer cases as there are deaths attributed to the disease.

According to vital statistics cancer mortality is exceeded by heart disease, pneumonia, tuberculosis, cerebral hemorrhage and softening of the brain, and nephritis. So far as deaths occurring in adult life is concerned cancer as a primary cause of death exceeds all of the others referred to because heart disease, for example, is the result of some other disease in a large proportion of the cases. This is also true to some extent with pneumonia which may, for example, be the terminal cause of death in many septicemiae.

The official death rate of cancer is mounting, for in twenty-three years the rate has risen from 63.0 to 89.4 or about 41 per cent. and for the organs involved the stomach and liver are most frequently affected. Females are more prone to cancer than males because of the tendency of cancer to invade the breasts and female generative organs, although males exhibit more cases of cancer in the buccal cavity, the skin and the stomach and liver. The total relative frequency in the sexes appears as 56.21 for females and 43.79 for males.

Reference to the work of Gye and Barnard is in accord with the majority of writers on this subject and while scientific investigation is most praiseworthy nothing has appeared which should displace surgery in the treatment of malignant growths.

The important permanent cancer clinics in the country are set forth in the publication of the Society as follows:

CANCER CLINICS

The Huntington Memorial Hospital, Boston, Massachusetts.

The New York State Institute for Malignant Disease, Buffalo, New York.

The Barnard Free Skin and Cancer Hospital, St. Louis, Missouri.

The Columbus Cancer Clinic, Columbus, Ohio.

The Blodgett Memorial Hospital, Grand Rapids, Michigan.

The Albert Steiner Ward for Cancer and Allied Diseases, Atlanta, Georgia.

The Todd Memorial Clinic and the Cancer Institute of the Hospital of the University of Minnesota, Minneapolis, Minnesota.

The Memorial Hospital, The New York Skin and Cancer Hospital, and The New York City Cancer Institute, all in New York City.

The American Oncologic Hospital and the Philadelphia General Hospital, Philadelphia, Pennsylvania.

The Pittsburgh Skin and Cancer Foundation, Pittsburgh, Pennsylvania.

The Rochester Clinic of the New York State Branch of the American Society for the Control of Cancer, Rochester, New York.

The cancer clinic of the Women's Welfare Association, Washington, D. C.

PENDULUMS IN EDUCATION

We are apt to forget that men were wise before our day, and that past generations gave no little thought to some of the very questions which are vexing us. So in the education of children: the modern emphasis has been placed upon the child's need for self-expression. Enforced discipline, punishment, insistence upon accomplishment of the unwelcome task—all these have been relegated to the antiquarian's shop. Turn, however, to a recent article by a pediatrician familiar with modern tendencies in education, who finds that "a far larger number of children suffer from too lax discipline in the home than from the repression and hidden fears due to harsh discipline." Not only morally do these children suffer. Good habits of eating, sleeping, obedience and adjustment to social situations are essential to physical well-being.

Huenckens* believes that emotional factors are often of more importance than physical, in determining the actual health of the very young child. He traces cases of physical derangement —loss of appetite, failure to gain in weight; anaemia, sleeplessness—to faulty home environment, an environment so lax in discipline that the habits necessary for health of both body and mind are never formed. The rule of reason may on occasion do more harm than the rule of fear.

So we return for instruction to the wisdom of past generations. May the same not be true in other departments of education? Shall we not find, perhaps, even in the teaching of medical students, that certain of our fathers' methods were better than our own, and that here too, in spite of our great advances, the Present may still draw wisdom from the Past?

*Huenckens, E. J.: J. A. M. A., 85, 7, p. 481, Aug., 1925.

SOME THEORIES ADVANCED BY OSTEOPATHIC PRACTITIONERS

A GATHERING of osteopaths has been held recently in England. Some present day exponents of the theories of osteopathy seem to have wandered away from the original field of sublaxations of the vertebrae. One has proclaimed that the adoption of the gorilla's habit of walking on the ball of the foot and not on the heel will set up a special form of breathing which stimulates the pancreas and thereby prevents the development of diabetes. At the speaker's suggestion the audience rose and with extended arms, standing on their toes, carried out the breathing exercises which, it was claimed, would prevent and cure diabetes. The speaker claimed to have cured himself by this method.

We are reminded of the unfortunate man who testified to having been cured of diabetes by chiropractic in his speech before a legislative committee but whose death was recorded a few months later as having been caused by diabetes.

Another speaker reported that he had conserved the output of energy by his heart, by a two months' rest and careful dieting. No one would criticise this treatment. Others felt sure that osteopathy cured epilepsy and albuminuria.

Theories of the cause and cure of diseases that are not based on pathology do not appeal to scientific men. We shall be surprised if the British people find enough logic in these statements to warrant legal endorsement of this practice.

THIS WEEK'S ISSUE

Contains articles by the Following Writers:

LAHEY, FRANK H., A. B., M.D., Harvard; F. A. C. S. Surgeon to the New England Deaconess and the New England Baptist Hospitals. His subject is "The Use of Iodine in Goitre."

FIELD, M. T., M.D., Harvard, Member A. M. A., F. A. C. S. Visiting Surgeon Salem Hospital. His subject is "Observations on One Thousand Appendectomies."

ROGERS, MARK H., A. B., Williams College; M. D., Harvard. Professor of Orthopedic Surgery at Tufts Medical School, Visiting Orthopedic Surgeon Massachusetts General Hospital. Member of American Orthopedic Association. Subject: "The End Results of Compressed Fracture of the Spine."

THENEBE, CARL L., M.D., University of Pennsylvania School of Medicine. Resident Physician Hartford Isolation Hospital, Visiting Physician in Pediatrics and Contagious Diseases St. Francis Hospital, Hartford. His subject is "Further Observations on the Administration of Dochez's Scarlatinal Antitoxin."

BRYANT, JOHN, A. B., M.D., Harvard. Formerly Director Convalescent Department Walter Reed Hospital, Secretary American Gastro-Enterological Association, Corresponding Consultant Burke Foundation for Convalescence, Medical Assistant in Problems of Convalescence Massachusetts General Hospital. His subject is

"Convalescence VIII: Notes on Convalescence Work in the U. S. Army" (cont'd).

DAYTON, NEIL A., M.D., Ohio State University. Assistant Superintendent Wrentham State School, a member of New England Society of Psychiatry, and American Psychiatric Association. His subject is "Gas Bacillus Infection with Perforated Gastric Ulcer."

HAWES, JOHN B., 2ND, A. B., M.D., Harvard. President Boston Tuberculosis Association, Consultant for Diseases of Lungs U. S. Veterans Bureau. His subject is "Progress in Pulmonary Tuberculosis."

The Massachusetts Medical Society

MEMBERSHIP CHANGES

Dr. David D. Scannell has moved his office from 320 Commonwealth Avenue to the Lister Building, 475 Commonwealth Avenue, Boston.

Dr. B. Thurber Guild has moved his office from 491 to 475 Commonwealth Avenue, Boston.

Dr. Everett V. Hardwick has moved from Allston (Middlesex South) to Quincy (Norfolk South), where he is at 104 Revere Road.

Dr. George H. Maxfield has removed from Chelsea (Suffolk) to Mattapan (Norfolk), 400 Walk Hill Street.

Dr. H. H. Powers has moved from Brookline (Norfolk) to Northampton (Hampshire), where he is at the U. S. Veterans' Hospital.

LEGISLATIVE NOTE

[CHAP. 215.]

AN ACT RELATIVE TO THE METHOD OF REPORTING CERTAIN DISEASES DANGEROUS TO THE PUBLIC HEALTH.

Be it enacted, etc., as follows:

Section one hundred and twelve of chapter one hundred and eleven of the General Laws is hereby amended by adding at the end thereof the following:—The provisions of this section and of sections one hundred and nine and one hundred and eleven shall not apply to gonorrhea and syphilis, the same having been declared to be diseases dangerous to the public health. Said diseases shall be reported to local boards of health, either directly or through the department, in accordance with such special rules and regulations as the department may make, having due regard for the best interest of the public.

Approved April 3, 1925.

THE COMMONWEALTH OF MASSACHUSETTS, DEPARTMENT OF PUBLIC HEALTH

REGULATIONS GOVERNING THE REPORTING OF GONORRHEA AND SYPHILIS

1. In compliance with the provisions of Chapter 215, Acts of 1925, on and after October 1, 1925, gonorrhea and syphilis are to be reported in the manner provided by these regulations.
2. Gonorrhea or syphilis in a communicable stage is to be reported at the earliest possible moment that a diagnosis is made.
3. Whenever a physician has reason to believe that a person whom he has examined is suffering from gonorrhea or syphilis in a communicable stage, he shall furnish such person with a numbered circular of information and advice concerning the disease in question furnished for that purpose by the State Department of Public Health through the local boards of health.
4. The physician shall at the same time fill out the numbered report attached to the circular of advice and forthwith mail the same to the local board of health in the community where the diagnosis is made. This report shall not contain the name or address of the patient.
5. If, however, the physician ascertains that such person has received a circular of information from another physician he shall not report the case as above directed, but shall notify the physician last previously consulted of such patient's change of medical adviser.
6. Whenever any person suffering from gonorrhea or syphilis in a communicable stage fails to return for treatment within a reasonable time (not exceeding 21 days from the time last set by the physician) or whenever in the opinion of the physician the patient is a menace to the public health, the physician shall immediately notify the local board of health, giving name, address of patient, age, sex, occupation, name of disease and serial number.
7. The local board of health shall forward to the State Department of Public Health daily a list of the cases of gonorrhea and syphilis that have been reported either by number or by name, on forms and in envelopes furnished by the Department.

EUGENE R. KELLEY, M.D.,
Commissioner of Public Health.

Approved and adopted at a meeting of the Department of Public Health held on July 14, 1925.

MISCELLANY

PREVENTION OF SMALLPOX

THE Health Commissioner of Boston has had several conferences and communications with the Boston Chamber of Commerce during the past month in consequence of the request of the commissioner that the Chamber co-operate with him in calling attention to the smallpox situation in the country, and to show the organized business

interests of Boston the desirability of having persons employed in business and commercial establishments vaccinated if tests do not prove them to be already immune to smallpox.

Steps were already taken by the Health Commissioner several months ago, with the approval and coöperation of the Mayor, to induce the large insurance companies, acting through local agents, to give their aid directly and through affiliated organizations in encouraging a vaccination or testing as to immunity on the part of the general public. It is the object of the Health Commissioner by such measures to lessen the chances of a smallpox epidemic in Boston, or should an outbreak occur to render it unnecessary to invoke a law which provides for general compulsory vaccination.—*Bulletin Boston Health Department.*

DOG BITE CASES INVESTIGATED

LAST year in Boston the Department of Health investigated 617 reported dog bite cases, seventeen cat bite cases, and ten others. Of this number there were found upon examination eighteen actual cases of rabies in dogs, and one in cats.

AN OPPORTUNITY TO HELP

THE advertisement of Dr. Ellis appearing in this issue presents an opportunity to assist in the missionary work of the Presbyterian Board. Dr. Ellis is now on furlough after spending one term of service in India.

THE COMBINED MEETING OF THE ESSEX NORTH AND SOUTH, THE MIDDLESEX NORTH AND THE MIDDLESEX EAST DISTRICT SOCIETIES

BY the courtesy of Dr. George M. Kline, Commissioner of Mental Diseases, and the officials of the Danvers State Hospital, the combined meeting of the four District Societies designated above was held at the Danvers State Hospital September 2, 1925. An opportunity was given to inspect the Hospital previous to the meeting.

At two o'clock Dr. R. C. Hurd, President of the Essex North District Society, called the meeting to order and voiced the thanks of the Societies to Dr. Kline and the management of the Danvers Hospital for the courtesy extended to these Societies. He then introduced Dr. Charles F. Painter, Chairman of the State Society Committee on Medical Education and Medical Diplomas, who spoke on "The Dangers of Indifference."

His remarks were based largely on the experience of his committee in efforts to secure legal standards in this Commonwealth for medical education. Although the objects sought through legislation had not been fully realized, he felt that if the medical profession could be induced to lend concerted aid the people of the State would come to understand the wisdom of requiring a sound medical education for all practitioners of the healing art. The present classification of our medical schools should be regarded as representing the best efforts of the profession in developing the most useful application of the sciences and art of medicine. He referred to the present conditions in this State where certain of these schools are located and are not able to secure an acceptable rating. He explained the attitude of his committee as having no specific antagonism to any one school and it could be inferred from his remarks that whenever any school now unrecognized could show conformity to the recognized minimum requirements it would be a pleasure to accept the credentials of such schools.

It was especially urged that if there are differences of opinion in the profession relating to medical education the committee should have the advantage of being made aware of such ideas so that we can unite in the adoption of standards which will be approved by the majority. It is quite evident that there is a certain kind of opposition to the purposes of the Massachusetts Medical Society and the American Medical Association and it is quite in order that if we have an accepted policy the Committee on Medical Education should have the effective support of the physicians of the State. This support must be more than sentimental and should take concrete form if we are to have influence with the law makers, for numbers carry weight, and the opposition to our recommendations has been shown by large numbers of the people of the state who are not in accord with our views. Although there are obvious reasons why the hard working members of the profession are often detained at home, every reasonable sacrifice should be made to show the members of the legislature that physicians are united in movements which they believe to be for the best interests of the state at large. Those who cannot attend hearings may properly seek personal interviews with representatives and senators and explain the situation. If there is a feeling that the problem has not been approached in the best way the members present were asked to speak freely and plainly.

Dr. T. J. O'Brien, Secretary of the Committee on State and National Legislation, was the next speaker. He explained the purposes of the committee in inaugurating and endorsing legislation which is believed to be for the best interests of the people and reported that the committee's recommendations have been opposed by powerful organizations which employ legal counsel and maintain a lobby, thereby securing the support of the legislature for their particular objections to the recommendations of the Massachusetts Medical Society. The science of medicine is an uncharted field for those who have not studied it, and hence proper medical

education does not appeal to some estimable people.

He referred to those bills urged by the committee, the first being that requiring vaccination of pupils in private schools which would help in the contest against smallpox but which has been opposed by the Medical Liberty League, Inc. He reminded the members of the large death toll from this disease the past year and the effect that an epidemic of smallpox has on business, using the evidence submitted by the Detroit epidemic as an illustration. He felt that the attitude taken by Chambers of Commerce should encourage us.

The second bill which called for attention was that introduced by the chiropractors designed to give legal endorsement of this cult. The committee had opposed this bill because if is found that cultists do not have the opportunities for acquiring an adequate education in the fundamental medical sciences and that these people are trying to enter upon medical practice through special privilege rather than by a demonstration of fitness to meet the problems of disease.

He felt that the claims of the chiropractors were an insult to the Creator who made the spine of man usually a properly functioning part of the anatomy but which has been assaulted by the chiropractor without reason.

The study of medicine means expenditure of time and money both in the school and hospital but the cultist wants the right to practice without giving time to the acquistion of a proper education. The absurdity of the claim that chiropractic is not the practice of medicine was combatted. He referred to the experience of New Jersey where five hundred and sixty-five chiropractors were given the right to practice and the next year two thousand physicians placed themselves on record in opposition to the law and secured its repeal.

In those states where chiropractic is legalized and a separate board created for the registration of these cultists almost all applicants for registration as such are successful. He affirmed that if we cannot meet this menace in the legislature we will have to compete with the chiropractors all through the state. He deplored the absence of physicians before legislative bodies when these matters are discussed. He referred to the forty-seven hundred physicians belonging to the Masachusetts Medical Society and the Masachusetts Homeopathic Society and explained that members of the legislature really want to know the wishes of their constituents and that physicians have abundant opportunities to instruct those in the legislature coming under their influence. Although regretting the unwillingness of physicians to engage in legislative activities, he paid tribute to the standards of living exemplified by them.

Dr. John M. Birnie, Chairman of the Massachusetts Board of Registration in Medicine, spoke on "Medical Standards." He felt that the medical profession has an incomplete knowledge of the laws governing the registration and practice of physicians. He referred to a recent statement by His Excellency Governor Fuller to the effect that he is interested in raising the standards of medical education which are admittedly low in Massachusetts and since the Governor is with us this year will be an opportune time for better legislation. He felt that our standards are low only in one respect, that being the requirement that we are obliged to examine all applicants from a legally chartered medical school which requires a preliminary education equivalent to that required in a high school and also gives a four year course of instruction in medicine. In contrasting Massachusetts with Pennsylvania, for example, he stated that although Pennsylvania has very high requirements for those holding M.D. degrees, the cultists are registered in considerable numbers, but in this state we have no side doors for entrance into practice but all have to meet the same examination.

If the Board of Registration or the Department of Education or any other qualified bodies could grade medical schools and only approve those wihch give a reasonably good course, our law would be eminently satisfactory so far as educational requirements are concerned.

At present time there are only five class C schools in the country and two are under indictment. There are three in Massachusetts.

Reference was made to the law restricting membership on the Board of Registration so that not more than three members could be appointed from one society and he advocated removal of that restriction, citing the fact that Dr. Prior felt moved to resign from the Massachusetts Medical Society in order to make it possible for the Governor to appoint Dr. Sylvester. This was a sacrifice which should not be necessary. The suggestion made in our bill of last year removing this restriction was commended but a rider providing that one osteopath should be appointed made it unreasonable, for it introduced the feature of class legislation.

The present situation, he explained, is complicated by the fact that the Massachusets Medical Society has on its books about seventy-six per cent. of the members belonging to the Massachusetts Homeopathic Medical Society and this leaves only less than one hundred Homeopathic practitioners eligible for appointment on the Board. He urged physicians to explain fully the problems of medical education, medical practice and the features of the law relating to these matters to the laity for with a better understanding of conditions the people would deal with these matters intelligently. We must recognize that the medical profession alone cannot influence legislation.

In discussion which followed, Dr. I. J. Clark of Haverhill proposed a motion which, if

adopted, would create a legislative committee in every town or city. Dr. W. T. Hopkins of Lynn approved the sentiment behind the motion but felt confident that it could not be made workable for he felt that it would be difficult to get sufficient information relating to the bills before the legislature before so many people. Although he had been active in his district and had made every effort to get early and specific information about bills, he had been unable to make an effective campaign. The simple request made to a representative to support a bill by number did not carry weight and until some system could be devised which would enable doctors to impart definite information nothing would be accomplished. The motion did not prevail.

Dr. Charles E. Abbott of Andover, a member of the legislature, gave a very illuminating explanation of the mental attitude of legislators and the difficulties incident to the securing of favorable attention. He had had little assistance from the profession during his six years in the legislature and was seldom approached by doctors. He had tried to put himself in the position of the average citizen, because legislators represent the laity. They are impressed by what they see and hear and numbers count. The scientific man does not convey a very impressive message to the average layman, and one citizen has about as much influence as another. A report of a cure impresses a layman even if it comes from a cultist. Our resource lies in missionary work not only among members of the legislature but also among the people.

Dr. Prior of Malden reported that a new medical association had been formed in Malden made up largely of graduates of class C schools.

Dr. C. E. Simpson, District Health Officer, urged the profession to remember that we must not seek legislation which is designed to help the doctor but rather that its value lies in its benefit for the people. We should not have any selfish purpose in our efforts to secure the passage of laws.

Dr. Albert M. Barrett, Professor of Psychiatry of the University of Michigan and formerly on the Staff of this Hospital, was then introduced. He gave a very interesting address, bringing out the responsibilites and opportunities of the general practitioner when confronted with psychological problems. Psychiatry today is a problem in preventive medicine and calls for the active support of the general practitioner.

He presented three cases from the wards of the hospital illustrating his remarks and showing the great difficulties encountered in dealing with border line cases.

A cordial vote of thanks was tendered to Dr. Barrett for his interesting address.

The hospital authorities invited the members to partake of an excellent repast. The meeting was attended by about one hundred physicians and was most successful in every feature.

RECENT DEATH

O'CONNOR—Dr. John Francis O'Connor, a Fellow of the Massachusetts Medical Society, died at his home in Worcester, of carcinoma of the mouth, August 1, 1925, aged 57. He was a graduate of the College of Physicians and Surgeons, Baltimore, in 1896, and had practiced in Worcester since 1901.

TAYLOR—Dr. James Taylor, Jr., a practitioner of Worcester, died at Portland, Me., September 2, 1925, aged 56.

Dr. Taylor was a native of Glasgow, Scotland, where he was born in 1869. He came to this country as a boy with his family, who settled in Southbridge. Fitting for college at Phillips Andover, he was graduated from Williams in 1895 and from Harvard Medical School in 1900. He was a Fellow of the Massachusetts Medical Society and gave his chief attention to the practice of diseases of the eye, ear, nose and throat. He was a thirty-second degree Mason and a member of several clubs in Worcester.

Dr. Taylor is survived by his widow, who was Miss Elsie Walker of Allston, and by one son.

DOUGLASS—Dr. Edmund Stowe Douglass died at the Holden Hospital, Holden, Mass., August 29, 1925, at the age of 37.

He was a graduate of the University of Vermont Medical School in 1910, joined the Massachusetts Medical Society in 1921, and had practiced in South Barre.

CORRESPONDENCE

A PILGRIM IN DERMATOLOGY

Mr. Editor:

On the evening of February 15 the good ship Ohio departed from Boston after a rainy farewell. There was no waving of fond farewells to the friends we left behind because even the staunchest had given up to the mighty rain. Those who with love and friendship in their hearts had come to see us under way had departed, leaving various suitable and unsuitable gifts behind. So our first acts were to examine the packages and read the various notes and cards wishing us all sorts of a good voyage.

Tired, the white bed with its protecting bumper looked indeed inviting, and so I turned in. For some time I lay awake and soon the noises above and below me ceased, and I was alone with my thoughts. Then I began to look for symptoms of mal-de-mer and to try to remember all the remedies, which I had looked up in vain, for the threatened internal convulsions, and as I thought I was angered by the ignorance of our medical world, no contribution in the way of prophylaxia for this promised illness. Then I thought of the many advices of my lay friends who had stepped into the breech left open by fellow physicians. The advice I remember was this: Eat something substantial.—Don't eat.—Drink something.—Don't drink.—Stay in your bunk and don't go on deck.—Be sure to go on deck as soon as you feel any qualm! With this conflicting battle I became weary and was fortunate to relegate my thoughts to the unknown theory of sleep, and I awoke in the morning rather surprised and perhaps somewhat disappointed to find myself well. It was the last time I thought of that evil. It was one of the most pleasant voyages imaginable; a sea without a ripple; warm, sunny days which forced everyone to dress in summer clothes.

A real vacation trip! For it was such to all, no hurrying for business reasons, everyone happy and well. Our travelling companions were not the usual types that travel on ocean-going vessels, but it was as if we had condensed our own Boston into a group of 500 people, representing our various classes of

clergy, doctors, lawyers, and so on, representing all classes in a happy, lovable group.

We did not have to wait to make friends, for we were all friends immediately, bonded by a common interest and perspective. Though outside of the various deck sports there was little to engage our attention, the days passed pleasantly. For five days after the gulls had disappeared there was not a thing in sight but the magnificent spectacle of the ocean, save a tramp steamer which we passed on the fifth day.

Washington's birthday was a joyous event on board, and the ship's interior was very prettily decorated with bunting and American flags. On February 23 we landed at Funchal, Madeira.

Madeira is an island of volcanic origin, situated in the Atlantic six hundred miles southwest of Gibraltar. Years ago the Madeira's soft and genial air was regarded as a suitable "cure" for tuberculous patients, but the island has been recently abandoned for the high Alps and the deserts of South Africa.

The absence of sight of anything on the ocean served to enhance the beauty of the approach to Funchal. The bay is completely circled by hills, with the town spreading upwards and outwards. Picturesque houses rose above a wealth of tropical greenery, a veritable masterpiece painted in the glass of our telescope; beautiful, but revealing little of the charms which we were to see later more intimately. Amid the clamor of the diving boys and the importunity of the traders, we landed.

There is a certain ancient charm about Madeira. The oxen-drawn carts on runners, not wheels; the girls filling pitchers at the fountain, and the artisans plying the little trades in the open shop. It is carried even to the hospital, which was an ancient structure, resembling an old court house. The wards were located on the top floor, hard, old-fashioned low beds, and here also were the old movable iron bath tubs for the purpose of hydrotherapy, and ranged aside of these were the old-fashioned bedside stools.

The operating rooms have the original plain, white, iron table, and the instruments in the cases were more like those in our museums, ebony-handled knives and forceps. Talking to a local M.D., he spoke of the poverty of the poorer people and the incidence of syphilis, which may be one cause of Madeira's declining birth rate. Infant mortality, on account of the healthy outdoor life, is less than might be expected. The island seems to be overpopulated, and begging is common. However, the beauty of the gardens made us forget all, for Madeira is rich in flowers of all descriptions—a veritable flower garden.

Our guide, who evidently prided himself in his knowledge of botany, named the flowers to us, and as he spoke of the Aquile-Glas and the Stretitzie I thought myself back at the hospital listening to some fellow dermatologist. Despite the names, the flowers are beautiful.

Though we ascended by railway to the Mount Church and tobogganed down in the "cunning" cars, gambled at the Casino and lunched at that delightful hotel, it is the memory of the gardens that surges up with the association of Madeira.

From Madeira we went up to Gibraltar, which, outside of the fortress and the extremely low prices of all articles, seems rather uninteresting compared with the little neighboring town of Algeciras, which abounds in interesting Spanish sights and structures. Then on to Algiers!

The first view of Algiers from the ship is a vision of white. There is a terrace boulevard which flanks the port and a large harbor with many warships. Algiers is a great and populous city. It has a wonderful blending of things, Arabian and European. It is like a brilliant miniature in a rugged setting. The native quarter is a place to be remembered. We struggled through narrow, dirty alleys and overhanging porches. Here we see the open shops and the native care with the leisure population of the neighborhood stretched out on mats and benches, smoking, talking and drinking, clothed in mere rags. Here and there we chance upon some richly mantled individual who is evidently a sheik of a tribe or Caid of a village.

The European part of the city is well kept and very excellent. As regards the health of the native quarter, one can not but be appalled at the number of blind—even many of the children had lost one eye; the incidence of trachoma must be very great.

At Naples those who had visited there a few years previous were amazed at the changes effected by Mussolini. There were no beggars about the churches or elsewhere, the streets were clean and order was prevalent.

The mention of Naples immediately associates in one's mind Amalfi, and, as Longfellow writes:

"Sweet the memory is to me,
Of a land beyond the sea
Where the waves and mountains meet,
Where, amid her mulberry trees,
Sits Amalfi in the heat,
Bathing ever her white feet
In the tideless summer seas."

At Pompeii there has been a reconstruction of the Via Del Abbondanza, one of the gayest streets of the ancient city, and when we see the guiding sign of the stone penis directing the wayward to the house of illicit desire, we wonder whether or not it can be true that syphilis did not date back earlier than 1492 in Europe. The psychopath would have plenty of chance for reflection by studying the various perversions pictured in the above houses, which are still well preserved.

Forgetting for a while the churches and ruins of Ancient Rome, I had the opportunity to see the splendid work of Professor Pio Pediconi, at the Hospital S. Gallicano, which is located in a very old church, but which has been completely renovated, and where there is every sort of the best and latest therapeutic appliances, electrical and mechanical. Professor Pediconi showed some very good results of electrical coagulation—and I am quoting his paper, translated by Dr. James Siragusa, which was to be read at London:

"THE ELECTRO-COAGULATION IN TUMORS AND IN LUPUS

"By Professor Pio Pediconi

"Diathermy is being used for the treatment and cure of all the dermatoses which demand a rational destruction of either tissues or pathological infiltrates.

"In 1911, it was applied by Nazelschmidt in lupus, and later followed by the works of Jacobi, who reported that he had obtained permanent results. According to Jacobi, the advantage of the diathermic treatment in lupus consists in the possibility of reaching and of regulating the depth and density into the skin, and it also prevents the danger of the spread of the disease by the opening of some blood or lymphatic vessel.

"According to Kovranselit, the disadvantage would come from lack of an elective action of diathermy, which could be obtained with Finsen, X-ray or radiotherapy, and besides, according to Jacobi, would not give those beautiful scars obtained by use of Finsen therapy."

Then followed the observations of Salomon, Whliz, Withmann, Grimbaum and Peilchen—the latter mentions that he treated on himself a tubercular verruca with rapid and perfect result.

"Personal Observations

"In St. Galliano Hospital in Rome, with the help of Dr. Riccardo Moretti, I have had occasion to treat

many cases of lupus. Before I refer to a complete summary of the treatment practiced by me I intend to consider the indications or rather the intervention and the non-intervention in tubercular lupus. I believe that it is not superfluous to insist on a fundamental and important point—namely, the necessity to consider with the greatest care toward the indication and contra-indications in the local destructive treatment in lupus.

"Experience has taught me to be careful in the treatment in all those cases of lupus that do not tend to ulcerate, and wider experience has shown that such cases not treated will heal up spontaneously, due to fibrous change (metamorphosis). In such cases, general treatment is enough. I would say 'noli Gangere.'

"At any rate, whatever seems to be the necessary treatment, we can't deny that today, with the use of diathermy, we get such good results that merit the attention of those interested in such cases.

"I have treated many cases. I have been able to follow up with discreet care for one year six cases, and I am compelled to confirm the conclusions of one of the preceding mentioned authors.

"I don't concur with Jacobi's opinion that the scars are less beautiful from those obtainable with Finsen therapy. I have always obtained good scars, level, soft, and not perceptible, even in those cases where quite deep destruction had to be done.

"I remember a boy of 10 years who had, besides a tubercular lupus with infiltration in the temporal region, a lupus in the lobe of the ear that had infiltrated so intensively the tissues that it made me think at first of the opportunity to use the electro-coagulation in the whole lobe. An initial superficial application was made to a depth of about 3 mm. After the elimination of the scar it was followed by a sore which, after two months, was covered by epithelusm without any retraction.

"Other cases were treated on the face and other parts of the body. I can affirm that all the scars were superior to those obtainable with chemical caustics or by cautery, even though several times a small nodule appeared.

"Electro-coagulation has given me good results, even in some cases of neoplasm.

"An ulcerative chancroid of the nose, near the internal angle of the eye, in a patient of 40 years of age, had often been treated in my hospital with the application of the solution of arsenic—with no results; but with one use of electro-coagulation it healed up quickly with a good scar. I operated on this patient a few days ago and found in the periphery of the scar 2-3 suspected points of residue.

"A simple angioma of the chin as large as an Italian penny, in a child of 4 years, was treated with electro-coagulation and healed up with a beautiful scar.

"I have also obtained good results in cases of verruca and keloidal acne.

"There is not a complete treatise on the subject. I have limited myself to mention the results of my few cases treated. We are still in the experimental stage, but we have been compelled to follow such studies in view of the good results obtained so far.

"In addition, the good results obtained are in relation to the technique used, which, although simple, must sustain the special observations obtained.

"Having at the present time many cases under my treatment, I promise that in the near future I shall explain and mention in minor details and more complete a collection of clinical cases, and since it is my object to improve on the technique, I shall be able to give a more complete and concise treatise on the subject."

Here at this hospital in the out-patient they had special delousing rooms and special treatment rooms for scabies. The latter rooms are blanketed on all sides; the patient is given a hot bath, then an attendant rubs in a sulphur ointment thoroughly, and the patient's clothes are all sterilized at the hospital, even to the shoes. The sterilization of the clothing is one of the chief reasons why we have such poor results, in our treatment of our out-patients, that the term "seven years itch" has remained.

Then up to Florence, Milan, and to Venice. What a refuge for the neurasthenic, for the overwrought, overtired, nervously exhausted patient. No roar of train, no honk of auto, no clang of street cars, to beat on weary ear drums—nothing but the soothing sound of the lapping of the water on the lagoon front—a tremendous silence, peaceful and restful. Amid all the silence there are wonders for all. St. Mark's Square with its doors and its mosaics, the Doges palace with its centuries of hidden tragedies.

Stopping a short time along route, Paris, the mecca of Americans, was reached—Paris, gay and festive; Paris, the home where personal liberty is paramount. We may sit and wonder at the so-called immorality of Paris, where there is no camouflage, no concealing of likes and dislikes, the city which makes the pedestrian hit by an auto go to jail, the city where one's home life is ideal, where men do not look with covetous eyes on other's wives; but we see the superficial show staged for the tourist, and these later moved at the immorality, forgetting that it is pictured for themselves. We ponder on our own nation's and city's morality, and perhaps, viewed by the morbid eye of a dermatologist, it appears but a sham. We sing of our own vaunted liberty and then tremble at the network of laws which is slowly engulfing us.

At the Hospital St. Louis the clinic is tremendous. Here we see all sorts of dermatological cases. Physicians from all over the world are here. Four senior men daily see the cases in the out-patient and then they are sent to the various house services for treatment and further study. The outdoor patients average about 200 a day. The ward work is interesting, but the equipment is very inadequate. The study of the various lesions is very thorough, but the treatment of the human being on whom the lesions are is nil; the comfort and morale of the patient are not even taken into consideration. Sabouraud now conducts his clinic one day a week; this clinic is entirely devoted to diseases of the scalp, and it is rather a large clinic and a very systematic one.

In contrast to the St. Louis is the London Hospital in London, England, where the treatment of the patient, as a whole, seems to be the paramount idea, so that the general hygiene and morale of the patient are best treated in all cases. The hospital, though rather old, is delightful; the wards are large, not overcrowded, sunny and airy. In the center of each is a large, cheery open fireplace with comfortable easy chairs about it for the ambulatory patient. The beds are individually screened with blue gingham draperies, which, combined with the bright red blankets in the beds, tend to make a happy, colorful atmosphere which is bound to cheer the most disheartened patient. Here Sequira has done a great deal of work in dermatology.

One does not realize the frightful ravages of lupus vulgarus unless he has visited one of these clinics in London. Their deformity, their wretchedness and their fortitude are fully equal to that found in any leper camp. Here where several hundreds are being daily treated we get some knowledge of the incidence of the disease. All sorts of heliotherapy are being used—the mercury vapor light in some cases. A method was devised by O'Donovan, who has made many excellent contributions to dermatology, of treating these patients in groups, by means of carbon arc lamps, suspended from the ceiling by a wire cable in a large unshielded arc lamp, and around it in a circle arc stand eight or ten patients, tanned according to the number of exposures; all cases receive this general treatment. They have several rooms with similar arc lamps. All wear glasses to

protect their eyes. The males are treated in the mornings and the females in the afternoons.

Locally the Finsen light is used, especially on lesions of the face, for it gives the best cosmetic results. It is a tedious and expensive method, requiring an elaborate apparatus and a specially trained corps of nurses, but the results are well worth the expense and care. It can not be applied to ulcerations or to uncous membranes. The procedure is the concentration of actinic light by means of rock-crystal lenses, fitted in a tube, to the affected areas. The light is produced by a powerful electric lamp, and the heat rays are absorbed by passing the beam through a column of distilled water. At the focus of the rays the skin is compressed by an apparatus consisting of two pieces of rock crystal fixed in a metal ring. Through this compressor a current of cold water passes constantly. The compressor is held in position by an attendant and the sitting lasts for at least an hour. Six hours after the application a blister forms, and healing takes place in about two weeks. An area the size of a quarter of a dollar can be treated at one sitting, and in an extensive case the treatment may have to be carried on for several months and even years.

At London one sees also considerable industrial dermatoses.

Art, literature and medicine. Dear old Boston has a very happy supply and it is pleasant to be back among them.

JOHN G. DOWNING.

COMMUNICATIONS TO PHYSICIANS DISTRIBUTED BY THE DEPARTMENT OF PUBLIC HEALTH

To the Physicians of the State of Massachusetts:

One of the primary functions of the Massachusetts Department of Public Health is to assist the physicians of the State in getting across health information to their patients. To this end the Department publishes a series of prenatal and postnatal letters, which are adapted to send to the prospective mother once a month before childbirth, and every month after, for two years.

The letters in no way attempt to take the place of the physician's advice. Rather do they emphasize the importance of regular visits to the physician, and set down in simple language some of the points in the care of Mother and Baby.

If you are interested in this plan of informing mothers, we should be glad to receive the names and addresses of any of your patients who could make use of the letters.

We enclose sample letters and are sending under separate cover a few of our other publications. We shall be glad to send a complete set on request.

Very cordially yours,

EUGENE R. KELLEY, M.D.,
Commissioner of Public Health.

The carrying and bearing of a child is natural and should be the healthiest and happiest time in a woman's life. The popular notion that a sick pregnancy results in an easy delivery is wrong. A sick pregnancy is not a normal pregnancy and needs special attention.

Fortunately, however, the true danger signals during pregnancy show in ample time. Blurring of the sight or spots before the eyes, discharge of blood, puffiness of the face, hands and feet, continual headaches, dizziness, neuralgic pains, especially in the pit of the stomach, nausea and heartburn, persistent vomiting—all are signals that something is wrong. If you have any of these symptoms you should notify the doctor at once and follow his directions.

Other changes are now taking place which you do not notice, changes in the blood pressure and in the urine, which can only be found by doctor's examination.

It is economy to choose a good doctor. Choose the one you can trust absolutely. Help him to give you good service by carefully following his advice. Let him know at once of any danger symptoms.

Every woman should have the services of a trained nurse during her lying-in period. In nearly every place you can get such service, no matter what your circumstances may be. If you are not able to have a trained nurse stay with you, engage the visiting nurse, who will call for a small fee per visit, and will be glad to advise you about getting ready for your confinement.

If you follow these suggestions there will be no need to worry. You can safely rely on your doctor, who will always be ready to answer your question, and you will have the contented feeling that you are giving your baby the best opportunities from the beginning of life.

Very truly yours,

MERRILL CHAMPION, M.D.,
Director, Division of Hygiene.

Letter No. 2.

We want to urge you to report once a week to your own doctor or to the health center. "An ounce of prevention is worth a pound of cure" applies to babies as well as to adults. The trained eye of the doctor will note things you may have overlooked.

Be prepared to answer questions about the baby's bowel movements. A breast-fed baby has three or four medium-sized, soft, yellow movements in twenty-four hours. While the baby gains in weight and seems well there is little to worry about. But do report anything unusual, such as continued restlessness at night, fussiness, refusal of food, etc.

Sometimes the baby is fussy because its clothes are wet or uncomfortable. Wash the diapers carefully. Use pure soap and rinse the clothes well. Dry the clothes out of doors in the sun. Diapers should be boiled after every second or third washing. Very often a baby's tender skin becomes sore from stiff, rough clothes. The buttocks are especially apt to become chafed. Cleanse the parts well and dry carefully after bowel movements. Do not use much powder. Use a little pure oil once in a while.

At about the fourth month the baby begins to drool—but this has nothing to do with teething. You will soon find him holding up his head. Every new thing that he does is an event to the mother and the family. Every new act in the baby's life is like turning over a new leaf in an interesting book. We must not hurry the story, however, but we must let it go on in due course.

Sincerely yours,

MERRILL CHAMPION, M.D.,
Director, Division of Hygiene.

Postnatal 4.

CHRISTIAN SCIENCE AND BOOMERANGS

Mr. Editor:

Some weeks ago the *Christian Science Monitor*, in furtherance of its campaign against physicians and against vaccination, published on its first page a two-column article entitled "Epidemic Cry of Smallpox Is a Boomerang."

This article was directed against the health authorities of Washington, D. C., who had urged vaccination in the presence of smallpox in that city, and the statement was made that there was no reason for such urge, that there was little smallpox in the country, and that health authorities were aware of the fact. (There were 69 cases and 20 deaths in Washington before the epidemic was officially pronounced as ended.)

"Public health authorities" (states the *Monitor*) "in the leading cities of the United States have unanimously given the most optimistic reports to representatives of the *Christian Science Monitor*. Such

statements as that from Cleveland, that it was never freer from smallpox than at the present time; from Columbus, that smallpox has been a minor disease for the last five years; from Chicago, that smallpox cases number less than usual; from San Francisco, that there has been a decrease in cases, and from Los Angeles, that there is no necessity for vaccination, are typical of prevailing conditions."

Being an intellectual native of Missouri and therefore wishing to be shown, I courageously wrote to the health authorities of the cities cited, asking confirmation of the opinions attributed to them, opinions which did not impress me as being in accord with what I thought I knew of health conditions in this country.

Four of the five gentlemen written to replied to my letters:

Dr. Rockwood of Cleveland denied that he "had at any time given any statement to representatives of the *Christian Science Monitor*."

Dr. Bundesen of Chicago stated that he personally believed in vaccination, that any decrease in the number of cases of smallpox in Chicago was due to his aggressive campaign and general vaccination of the inhabitants.

Dr. Parrish of Los Angeles wrote directly to the Editor as follows: "When your representative rang me on the telephone he asked me if there were many cases of smallpox in Los Angeles. I told him there were not. The question of vaccination was never discussed. He did not ask me anything about it, nor did I mention it in any way."

Dr. Hassler from San Francisco writes me: "I am in full accord with you in the matter of control of the disease (smallpox) by compulsory vaccination. . . . Our records for the year show that this city has had 175 cases, with 13 deaths, all of which were preventable if proper vaccination had been accomplished prior to contact."

Even Christian Science reporters are apparently liable to err. A two-column article based on such erroneous reports falls rather flat, but as its readers never see the corrections it doubtless serves its purpose.

But it is not only to expose the false premises on which this article is based that I am writing to you today. It is to express my surprise at the optimism of three of the five officers of health above referred to in the face of conditions which we in Massachusetts at least would think needed looking into.

The health officer of Columbus, who failed to reply to two letters, is reported to have said that "Smallpox in Columbus has for five years been a minor disease." Columbus is fortunate if this is the case, for in the four years 1920-23 Ohio had 19,332 cases of smallpox (1924 reports not available). Columbus' proportion would be about 200 a year. A minor disease?

Dr. Rockwood of Cleveland says, "Cleveland is free from smallpox. A large percentage of the population is successfully vaccinated. This is the reason for no smallpox."

Between 1911-1924 there were reported to him 2673 cases, 99 of them in 1924. Is Cleveland free from smallpox in the Massachusetts sense?

Dr. Bundesen of Chicago is a "believer in vaccination." He thinks "Our action in Chicago speaks louder than anything I can write. What I do say and what I feel proud of is the fact that Chicago, as compared to other large cities, is practically free from smallpox."

But is it? Chicago had, it is true, but 1741 of the 36,925 smallpox cases with which Illinois has been blessed during the last eight years, but this is almost exactly nine times as many as the 193 that "were corralled" in New York in the last eleven.

The 1924 record alone goes ahead of the eleven years' record of New York, 236 to 193.

Chicago is surrounded by the smallpox of the Middle West. Illinois, Ohio, Indiana, to say nothing of Michigan, Minnesota, Wisconsin, Iowa and Kansas, fairly reek with it. No other states in the Union have as much, and Dr. Bundesen has much to contend with, much to be proud of, but neither New York nor Philadelphia, nor yet London, Paris or Berlin, *nor all of them together*, have as much smallpox as does Chicago, if we are to depend on health officers' records.

Dr. Parrish of Los Angeles tells the *Monitor* reporter that there were not many cases of smallpox in Los Angeles. "I further stated," says he, "that there were about forty cases, which was nothing unusual—at any rate there was no epidemic." Would forty cases in Boston, nothing unusual, be accepted by Dr. Mahoney as a normal condition? Would Dr. Kelley at the State House sit quietly in his office if he knew there were forty cases of smallpox at one time in any part of Massachusetts?

Is it any wonder that the incidence of smallpox in the United States is exceeded only by that of India, China, Russia and possibly Mexico, Persia and Afghanistan, if the very health officers on whom we depend for protection can accept such conditions as normal, or, at any rate, as "nothing unusual," "something to be proud of" and not to be improved.

Dr. Hassler of San Francisco strikes the nail on the head when he says that his 175 cases of 1924 need not have been, had proper vaccination been done before contact.

SAMUEL B. WOODWARD.

ARTICLES ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY

Mr. Editor:

In addition to the articles enumerated in our letter of July 31, 1925, the following have been accepted:

E. Bilhuber, Inc.—

Theocalcin:
Theocalcin 7½ gr. tablets.

Lederle Antitoxin Laboratories—

Anti-Anthrax Serum 20 c.c. vial.
Tuberculin Pirquet Test ("T. O.") 10 capillary tubes.
Tuberculin Pirquet Test ("T. O.") 25 capillary tubes.

Merck & Co.—

Iodipin 40 per cent.:
Ampules Iodipin 40 per cent. 1 c.c.
Ampules Iodipin 40 per cent. 2 c.c.

H. A. Metz Laboratories—

Novarsenobenzol—Billon 0.15 gm. ampules.
Novarsenobenzol—Billon 0.3 gm. ampules.
Novarsenobenzol—Billon 0.45 gm. ampules.
Novarsenobenzol—Billon 0.75 gm. ampules.

H. K. Mulford Company—

Proteins Dried—Mulford:
Almond Protein Dried—Mulford, Apple Protein Dried—Mulford, Asparagus Protein Dried—Mulford, Banana Protein Dried—Mulford, Barley Protein Dried—Mulford, Bean (Lima) Protein Dried—Mulford, Bean (Navy) Protein Dried—Mulford, Bean (String) Protein Dried—Mulford, Beef Protein Dried—Mulford, Beet Protein Dried—Mulford, Buckwheat Protein Dried—Mulford, Cabbage Protein Dried—Mulford, Cantaloupe Protein Dried—Mulford, Carrot Protein Dried—Mulford, Cat Hair Protein Dried—Mulford, Cattle Dander Protein Dried—Mulford, Cauliflower Protein Dried—Mulford, Celery Protein Dried—Mulford, Chicken Protein Dried—Mulford, Chicken Feather Protein Dried—Mulford, Clam Protein Dried—Mulford, Cocoa Protein Dried—Mulford, Codfish Protein

Dried—Mulford, Coffee Protein Dried—Mulford, Coli (Communis) Bacillus Protein Dried—Mulford, Corn Protein Dried—Mulford, Cucumber Protein Dried—Mulford, Diphtheroid (Polyvalent) Bacillus Protein Dried—Mulford, Dog Hair Protein Dried—Mulford, Dysentery Bacillus (Polyvalent) Protein Dried—Mulford, Eggplant Protein Dried—Mulford, Egg White Protein Dried—Mulford, Egg Yolk Protein Dried—Mulford, Flaxseed Protein Dried—Mulford, Friedlander Bacillus Protein Dried—Mulford, Goose Feather Protein Dried—Mulford, Gonococcus Bacillus (Polyvalent) Protein Dried—Mulford, Guinea-Pig Hair Protein Dried—Mulford, Horse Dander Protein Dried—Mulford, Horse Serum Protein Dried—Mulford, Influenza Bacillus Protein Dried—Mulford, Kapok Protein Dried—Mulford, Lamb Protein Dried—Mulford, Lettuce Protein Dried—Mulford, Lobster Protein Dried—Mulford, Mackerel Protein Dried—Mulford, Meningococcus Bacillus (Polyvalent) Protein Dried—Mulford, Micrococcus Catarrhalis Bacillus Protein Dried—Mulford, Milk Protein Dried—Mulford, Mushroom Protein Dried—Mulford, Oat Protein Dried—Mulford, Onion Protein Dried—Mulford, Orange Protein Dried—Mulford, Orris Root Protein Dried—Mulford, Oyster Protein Dried—Mulford, Paratyphosus Bacillus "A" Protein Dried—Mulford, Paratyphosus Bacillus "B" Protein Dried—Mulford, Pertussis Bacillus (Polyvalent) Protein Dried—Mulford, Pea Protein Dried—Mulford, Peanut Protein Dried—Mulford, Pepper (Black) Protein Dried—Mulford, Pneumococcus Bacillus (Polyvalent) Protein Dried—Mulford, Pork Protein Dried—Mulford, Potato Protein Dried—Mulford, Rabbit Hair Protein Dried—Mulford, Rice Protein Dried—Mulford, Rice Powder (Polish) Protein Dried—Mulford, Rye Protein Dried—Mulford, Salmon Protein Dried—Mulford, Spinach Protein Dried—Mulford, Squash Protein Dried—Mulford, Strawberry Protein Dried—Mulford, Sheep's Wool Protein Dried—Mulford, Staphylococcus Bacillus (Albus and Aureus) Protein Dried—Mulford, Streptococcus Bacillus (Polyvalent) Protein Dried—Mulford, Sweet Potato Protein Dried—Mulford, Tea Protein Dried—Mulford, Tomato Protein Dried—Mulford, Tobacco Protein Dried—Mulford, Tubercle Bacillus (Human) Protein Dried—Mulford, Tubercle Bacillus (Bovine) Protein Dried—Mulford, Typhosus Bacillus Protein Dried—Mulford, Veal Protein Dried—Mulford, Walnut Protein Dried—Mulford, Wheat Protein Dried—Mulford.

Protein Extracts—Mulford:

Almond Protein Extract—Mulford, Apple Protein Extract—Mulford, Asparagus Protein Extract—Mulford, Banana Protein Extract—Mulford, Barley Protein Extract—Mulford, Bean (Lima) Protein Extract—Mulford, Bean (Navy) Protein Extract—Mulford, Bean (String) Protein Extract—Mulford, Beef Protein Extract—Mulford, Beet Protein Extract—Mulford, Buckwheat Protein Extract—Mulford, Cabbage Protein Extract—Mulford, Cantaloupe Protein Extract—Mulford, Cat Hair Protein Extract—Mulford, Cauliflower Protein Extract—Mulford, Celery Protein Extract—Mulford, Chicken Protein Extract—Mulford, Chicken Feather Protein Extract—Mulford, Cattle Dander Protein Extract—Mulford, Clam Protein Extract—Mulford, Cocoa Protein Extract—Mulford, Codfish Protein Extract—Mulford, Coffee Protein Extract—Mulford, Coli Bacillus (Communis) Protein Extract—Mulford, Corn Protein Extract—Mulford, Cucumber Protein Extract—Mulford, Diphtheroid (Polyvalent) Bacillus Protein Extract—Mulford, Dog Hair Protein Extract—Mulford, Dysentery Bacillus (Polyvalent) Protein Extract—Mulford, Eggplant Protein Extract—Mulford, Egg White Protein Extract—Mulford, Egg Yolk Protein Extract—Mulford, Flaxseed Protein Extract—Mulford, Friedlander Bacillus Protein Extract—Mulford, Goose Feather Protein Extract—Mulford, Gonococcus Bacillus (Polyvalent) Protein Extract—Mulford, Guinea-Pig Hair Protein Extract—Mulford, Horse Dander Protein Extract—Mulford, Horse Serum Protein Extract—Mulford, Influenza Bacillus Protein Extract—Mulford, Kapok Protein Extract—Mulford, Lamb Protein Extract—Mulford, Lettuce Protein Extract—Mulford, Lobster Protein Extract—Mulford, Mackerel Protein Extract—Mulford, Meningococcus Bacillus (Polyvalent) Protein Extract—Mulford, Micrococcus Catarrhalis Bacillus Protein Extract—Mulford, Milk Protein Extract—Mulford, Mushroom Protein Extract—Mulford, Oat Protein Extract—Mulford, Onion Protein Extract—Mulford, Orange Protein Extract—Mulford, Orris Root Protein Extract—Mulford, Oyster Protein Extract—Mulford, Paratyphosus Bacillus "A" Protein Extract—Mulford, Paratyphosus Bacillus "B" Protein Extract—Mulford, Pertussis Bacillus (Polyvalent) Protein Extract—Mulford, Pea Protein Extract—Mulford, Peanut Protein Extract—Mulford, Pepper (Black) Protein Extract—Mulford, Pneumococcus Bacillus (Polyvalent) Protein Extract—Mulford, Pork Protein Extract—Mulford, Potato Protein Extract—Mulford, Rabbit Hair Protein Extract—Mulford, Rice Protein Extract—Mulford, Rice Powder (Polish) Protein Extract—Mulford, Rye Protein Extract—Mulford, Salmon Protein Extract—Mulford, Spinach Protein Extract—Mulford, Squash Protein Extract—Mulford, Strawberry Protein Extract—Mulford, Sheep's Wool Protein Extract—Mulford, Staphylococcus Bacillus (Albus and Aureus) Protein Extract—Mulford, Streptococcus Bacillus (Polyvalent) Protein Extract—Mulford, Sweet Potato Protein Extract—Mulford, Tea Protein Extract—Mulford, Tomato Protein Extract—Mulford, Tubercle Bacillus (Human) Protein Extract—Mulford, Tubercle Bacillus (Bovine) Protein Extract—Mulford, Typhosus Bacillus Protein Extract—Mulford, Veal Protein Extract—Mulford, Walnut Protein Extract—Mulford, Wheat Protein Extract—Mulford.

Parke, Davis & Co.—

Mercurosal Solution.
Neo-Silvol Ointment 5 per cent.
Neo-Silvol Vaginal Suppositories.
Scarlet Fever Streptococcus Antitoxin Concentrated (Globulin)—P., D. & Co.

Sharp & Dohme, Inc.—

Caprokol (Hexylresorcinol—S. & D.) 2½ per cent. solution in olive oil.

E. R. Squibb & Sons—

Insulin—Squibb, 10 units, 10 c.c.
Insulin—Squibb, 20 units, 10 c.c.
Insulin—Squibb, 40 units, 10 c.c.
Insulin—Squibb, 80 units, 10 c.c.
Smallpox (Variola) Vaccine (Glycerinated), 1 tube.
Tetanus Antitoxin Purified, 20,000 units.

Standard Chemical Company—

Radon—Standard Chemical Company.

Winthrop Chemical Company—

Sajodin Tablets, 1 grain.

W. A. PUCKNER, *Secretary*,
Council on Pharmacy and Chemistry, A. M. A.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

DISEASES REPORTED FOR THE WEEK ENDING AUGUST 29, 1925

Anterior poliomyelitis	13	Pneumonia, lobar	18
Chickenpox	14	Scarlet fever	35
Diphtheria	35	Septic sore throat	1
Dog-bite	6	Syphilis	23
Encephalitis lethargica	4	Suppurative conjunctivitis	8
German measles	5	Tetanus	3
Gonorrhea	121	Trachoma	2
Influenza	3	Tuberculosis, pulmonary	105
Malaria	1	Tuberculosis, other forms	11
Measles	42	Tuberculosis, hilum	1
Mumps	2	Typhoid fever	15
Ophthalmia neonatorum	16	Whooping cough	142
Pellagra	1		

CONNECTICUT DEPARTMENT OF HEALTH

MORBIDITY REPORT FOR THE WEEK ENDING AUGUST 22, 1925

Diphtheria	11	Chickenpox	4
Last week	15	Dysentery (bac.)	1
Diphtheria bacilli carriers	6	German measles	1
Typhoid fever	7	Mumps	5
Last week	10	Paratyphoid fever	1
Scarlet fever	12	Pneumonia (broncho)	8
Last week	15	Pneumonia (lobar)	5
Measles	12	Poliomyelitis	1
Last week	15	Tuberculosis (pulmonary)	22
Whooping cough	75	Tuberculosis (other forms)	8
Last week	46	Gonorrhea	21
Cerebrospinal meningitis	1	Syphilis	16

NEWS ITEMS

MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION — The 54th annual meeting of the American Public Health Association will be held in St. Louis, Mo., from October 19 to 22. The headquarters will be at the Statler Hotel.

The work is divided among nine sections. In some instances two or more sections combine for consideration of special subjects. There will be five general sessions for the attendance of all the members of the organization.

DR. GEORGE C. SHATTUCK has been elected a vice-president of the American Society of Tropical Medicine.

DR. AURA J. MILLER, recently associated with Dr. Wolbach at the Harvard Medical School, has been appointed as Assistant Professor of Clinical Pathology at the University of Nebraska.

HEALTH CONFERENCE — The first Children's Health Conference in Littleton, N. H., under the direction of the State Board of Health was held in the Town Hall in coöperation with the Littleton Community Nursing Service. The Conference was a success from every point of view, due without doubt to the wonderful community spirit shown by all organizations and the people of the community.

Ninety-three children received a most complete physical examination. As a result sixty-nine of these little people were found to have one or more physical defects. Many of these were of a minor nature but should be given immediate attention for the future well-being and health of the child. Several children were found to be suffering from very serious troubles which, if allowed to continue, would seriously handicap the child.

REPORTS AND NOTICES OF MEETINGS

MEETING OF THE MASSACHUSETTS STATE NURSING ASSOCIATION

THE Autumn Meeting of Massachusetts State Nurses' Association will be held in Pittsfield, Massachusetts, "In the Heart of the Berkshire Hills," Headquarters, "Maplewood," October 9 and 10, 1925.

SOCIETY MEETINGS

DISTRICT MEDICAL SOCIETIES

Essex North District Medical Society

Wednesday, January 6, 1926—The semi-annual meeting at Haverhill.

Wednesday, May 5, 1926—The annual meeting at Lawrence.

NEW ENGLAND STATE MEDICAL SOCIETIES

The annual meetings of the New England State Medical Societies are scheduled as follows:

Vermont State Medical Society—St. Johnsbury, Oct. 15-16, 1925.

Notices of meetings must reach the JOURNAL office on the Friday preceding the date of issue in which they are to appear.

BOOK REVIEW

Diabetes: Its Treatment by Insulin and Diet (2nd edition). By ORLANDO H. PETTY and WILLIAM H. STONER. Published by F. A. Davis Company, Philadelphia, Pa.

THIS handbook has been considerably modified in its second edition. New material dealing with prevention, early diagnosis and the treatment of the complications of diabetes has been included.

In the second chapter in addition to definitions of carbohydrate, protein and fat, a discussion of the vitamins and the inorganic salts with tables showing the acid-forming or base-forming elements, the vitamin and sodium chloride content of common foods is given. Special attention is given to the dietary treatment of hypertension by means of Allen's salt free diet. Methods of estimating diet are clearly discussed, especially the ratio between fatty acid and glucose.

The authors agree that accurate and faithful measurement of the diet is essential for the successful use of insulin. They also approve of keeping the weight about ten per cent. below normal. This good advice should be remembered by both patient and physician.

Chapters on the use of insulin are especially helpful in describing the technique of administration. The last twenty-two pages are devoted to receipes and food tables.